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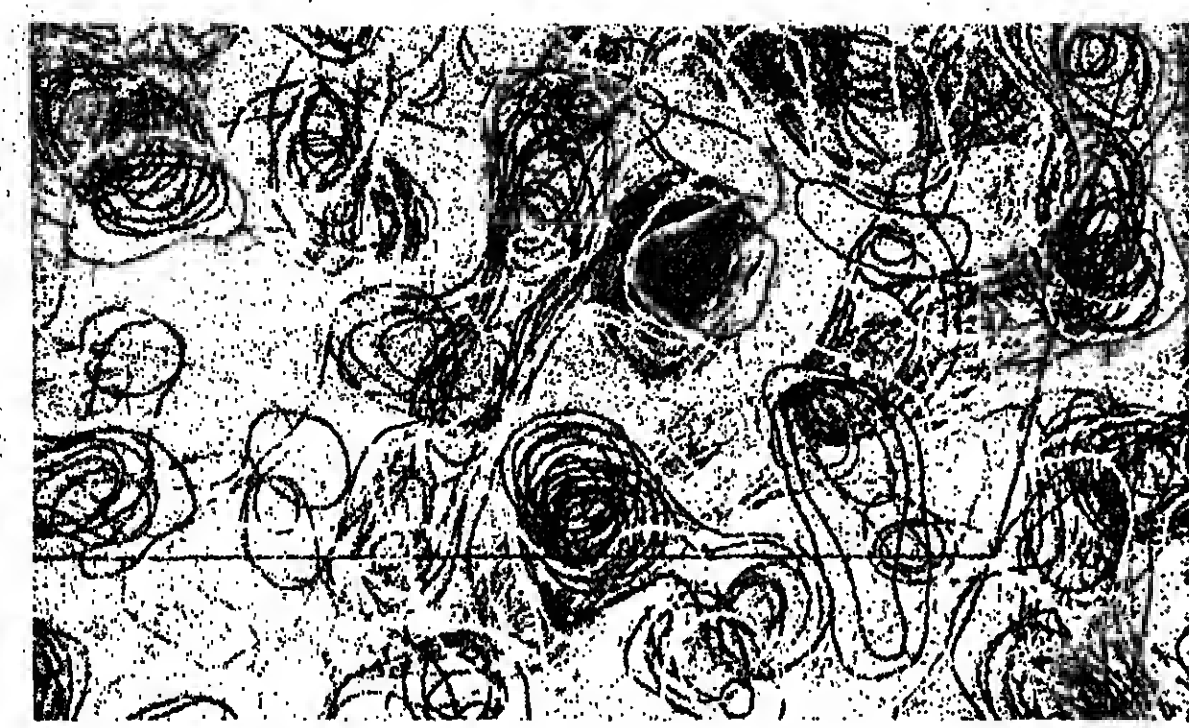
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THE TIMES LITERARY SUPPLEMENT

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In defence of positivism

PETER MEDAWAR has brought together some recent essays and lectures in which he looks at general problems of philosophy and civilisation from his standpoint as one of the most distinguished living biologists. *The Hope of Progress* begins and ends with two principal pieces—“Science and Literature” and “On the Effecting of All Things Possible”. In between there are shorter essays on psychomorphosis, on the work of the National Institute for Medical Research, of which he was for so long a distinguished director; two mainly concerned with the genetic improvement of man, and a review of J. D. Watson's well-known book *The Double Helix* about the discovery of the structure of DNA. They all have that elegance and lucidity which we have come to expect from Sir Peter. He is one of the few scientists of today with a technical competence in handling the written word which earns his essays a claim to be literature in their own right. The sense of a personal style is very strong; perhaps a somewhat swashbuckling style—an eighteenth-century elegance not without a hint of the Rake. “Anyone who thinks otherwise [about an interpretation of Blake's views on the relations between the imaginative faculty and reason] is a fool or a knave”: Sir Peter has many views on this topic, one way or the other.



An illustration: election, possibly of the philosopher, representing the relationship between nature and philosophy. (Illustration by C. H. Waddington's friend, 1969).

The essays must also, of course, be judged on their content, as science or as philosophy. As science they are, as would be expected from someone of Sir Peter's authority, almost faultless. It might perhaps be argued that in the discussion of the possibilities for the genetic improvement of man he presses his arguments further than is wholly justified. He argues that the case for “positive eugenics”—that is for constructive rather than merely remedial eugenics—is based on the model of stock breeding. If horses, dogs and cattle can be improved by selective breeding, it is argued, why cannot human beings? Besides giving the moral and political reasons for rejecting this suggestion, Sir Peter provides a scientific argument against it. This is based on the fact that stockbreeders nowadays realize that they are dealing with populations of animals and that all populations of animals must, under natural circumstances, contain a wide range of different hereditary factors. If they wish to aim at uniformity in such desirable characters as rapid growth-rate in broiler poultry or pigs, they may achieve this by producing uniform cross-breeds, which are hybrid and would, if allowed to breed further among themselves, produce very varied offspring, many of them having little economic value. The whole rationale for any attempt to improve the genetic endowment of mankind has therefore, Sir Peter claims, disappeared along with the out-of-date theory of stock breeding on which it was originally founded. However, against this it might be urged that breeders of the most im-

portant type of stock, dairy cattle, do not use the methods Sir Peter describes. The improvement of these animals involves keeping in being a heterogeneous gene pool, and trying to inject into it in every generation useful rather than harmful genes. There is no obvious reason, at the level of genetic mechanisms, why one could not keep adding useful genes to a human gene pool. The biological weakness of such a suggestion does not arise mainly, as Sir Peter argues, from misunderstanding about the nature of the genetic processes involved; it comes from the practical impossibility of deciding what one could mean by good genes, and even if one could decide this, the difficulty of discovering them.

The two major pieces in the book are not science in the same sense as

founder of the belief in the value of material improvements obtained by the application of science—“The Effecting of All Things Possible”.

Sir Peter's opponents are unlikely to be convinced if the matter is left there. Effecting of all things possible? Nuclear weapons, the atom-bomb, the hydrogen bomb, the South-East Asian peasants, Concorde? Is this the progress which it is the ultimate duty to deride? Certainly Sir Peter would not argue that it is. But it is necessary to ask what is the origin of his blindness to the real nature of the challenge to science, which is a claim that the essential method of scientific thought inevitably leads to a rejection of much that is of most value in human experience, to a denial of values, of beauty, of humane qualities in general.

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Sir Peter's own view of the nature of science would probably be difficult to defend against such an attack. He is a positivist, committed to the view that science works according to a “hypothetico-deductive” scheme, which he calls “the most important methodological discovery of modern thought”. According to this, the essential procedure is, first, to formulate, by means of imagination, a hypothesis from which certain conclusions can be deduced about how things should operate in the real world.

Originally, when the scheme was first propounded, the second stage was to perform experiments to see if they did so operate; and if the deductions were confirmed, the hypothesis would be said to be proved. Later, logical analysis rendered the notion of positive proof less acceptable, and Sir Peter claims to be a follower of Karl Popper, who modified the scheme by suggesting that, even if we cannot definitely prove a hypothesis, at least we disprove it if it does not operate as we deduced they should. But, whether we lay more stress on agreement or disagreement between deductions and experimental observations, what we are supposed to be doing, according to this view, is discovering the “truth”. And of this, Sir Peter writes: “When the word is used in a scientific context, *truth* means, of course, correspondence with reality. Something is true which is ‘actually’ true, is indeed the case.” There lies the nub; if something “corresponds with reality”, or “is indeed the case”, does it necessarily comprehend the whole of the reality in question, is it all of the case?

Sir Peter's views on this come closest to explicit expression in the first essay, his Romanes Lecture on “Science and Literature”. He explains his purpose thus:

If I had to choose a motto for this lecture, I should turn a remark of Lewis Dickinson's upside down. “When science arrives,” said Lewis Dickinson, “it expects literature.” . . . The case I shall find evidence for is that when literature arrives, it expects science.

Sir Peter argues that literature expects science by a willingness to accept a criterion of truth less rigorous than that which he has defined for science:

In this second conception of truth, a structure of imaginative thought—for example, a myth, especially if it appeals to magical agencies—will be judged true if it is all of one piece, hangs together, does not contradict itself, leaves no loose ends, and can be made sense of, in the unexpected. . . . All scientific theories must make sense, of course, but in addition they are expected to conform to reality, to be empirically true.

It is the relaxation of this condition, or the failure to enforce it, which Sir Peter sees as the characteristic of literature.

Sir Peter prints a reply to his Romanes Lecture by John Fiddaway, who questions rather sharply, and considerably more thoroughly than one can hope to suggest here, not only the validity of Sir Peter's particular

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T.L.S.

LIBRARY SUPPLEMENT



The impossibility of isolationism

ROY JENKINS

Afternoon on the Potomac?

A British View of America's Changing Position in the World.

59pp. Yale University Press. £1.50.

The lectures comprised in this small but characteristically elegant work were delivered in 1971, at Yale University, to commemorate Henry Stimson, who served as President Hoover's Secretary of State and President Roosevelt's Secretary of War. There is perhaps an appropriate irony in the fact that the first British lecturer on the foundation should be a man who has, like Stimson, earned the reputation of independence of mind and freedom from dogmatic commitment to a single party-line, right or wrong. When the lectures were delivered, Mr Jenkins was still Deputy Leader of the Labour Party, though already visibly uncomfortable in the role because of divergences and shifts of policy over Britain's approach to membership of the European Economic Community. There will therefore be special interest in his second lecture on "Britain's Changing Perspective: 1945-71". The first and third lectures, which deal primarily with the position of the United States in the world (before and after 1963 respectively) are interesting in a more conventional and less personal way.

Mr Jenkins argues that the British application to join the EEC should not be seen as a return to Europe after a prolonged absence, because there was no absence. "Britain has always been primarily a European rather than an Imperial power." All our most memorable battles were fought in Europe for European causes. At the turn of the century Britain tried to turn her back on Europe in "splendid isolation", but that was a short-lived aberration, not the norm. (It was also, it might be added, the slogan of the most anti-imperialist Prime Minister of modern times until 1914.) Mr Jenkins hints even that the fresh involvement in European warfare in 1914 might have been in part a consequence of the attempt to disengage. Between the wars, by contrast, British foreign policy was predominantly Eurocentric. Anthony Eden travelled extensively in Europe, but before the Second World War he visited Moscow only once, Washington and the Commonwealth or Colonies not at all. Much the same relationship of involvement in a commitment to Europe characterizes the history of United States policy during the past half-century. It is a central theme of Mr Jenkins's lectures that the United States is repudiating the ex-

perience of the UK at a fairly short interval of time.

For his own country, he poses the current question in the following terms:

The European political debate in Britain over the past twenty-five years has at last been about whether our relations with the countries of the Continent should be more akin to America's with continental European countries or to their own with each other.

The formulation is striking. Although clearly Mr Jenkins chose his terms partly to clarify the matter for an American audience, it must be supposed that he chose them also partly to foreclose the debate. For it is manifestly impossible that Britain's relations with the European states should be similar to those of the United States since the latter are founded upon an immense economic superiority as well as a much greater geographical separation. The geographical separation of the United States, of course, becoming relatively less as its economic superiority as the EEC begins to ebb and to prosper. But the latter factor reduces the case for British isolationism to even deeper absurdity. If Britain has been unable in the past quarter of a century to sustain an American-style relationship with France, Germany and the rest as separate states, how could it possibly be sustained with a united western Europe? Clearly, Mr Jenkins is fully conscious of the implications, although he does not make them explicit. The rest of his argument follows inevitably from the initial formulation.

He shows easily in a few paragraphs how Britain failed to maintain either the role of a third great power or the "special relationship" with the United States. He points with conventional wisdom to the Anglo-French fiasco on the Suez Canal in 1956 as the moment of truth. He rightly indicates that the French reaction to that shock was different from the British. The French brought a Gaulle back to power, created an independent nuclear force, and launched "an intemperate pursuit of French independence with the Anglo-Sixons kept as much as possible at arm's length". But they also liquidated their last major colonial commitment, in Algeria, and set about imposing their own character on the movement towards European unity. The British were less successful. Mr Jenkins passes over the next few years in glorious silence, and merely indicates the three attempts to adhere to the Treaty of Rome in 1961, 1967 and 1970. The rule in principle to accept the negotiated terms of accession on October 28, 1971, he describes as "probably the most dramatic and

significant since May, 1940". He adds his own view "that a majority of public opinion will fairly rapidly accept what has been decided". The rest of the lecture explains why.

Mr Jenkins does not attempt to arrange the arguments for joining the EEC in order of urgency and importance. He does not even mention the argument based on defence, which, rather surprisingly, took first place in the present Government's White Paper last year. While acknowledging that "it has become something of a commonplace to say that the case for entry is 'political more than economic', he takes the view himself that the economic case is stronger than he thought it a few years ago—presumably before he became Chancellor of the Exchequer. In effect he refuses to present the two as distinct cases: the economic case is political. It is that membership of the Community "will substantially enlarge our ability to influence our own destiny". He gives a forceful illustration of the argument from his own experience: at meetings of the Group of Ten, when the Six withdrew from time to time to concert their own collective policy, he and the United States Secretary of the Treasury were left almost alone in the middle of the room for hours on end; but whereas his American colleague "like me, was a little impatient at the delay, but not worried, because he thought that he could live with whatever decision emerged from the Six, I was by no means so

sure that I could do so". The moral is that remaining outside the Community does not mean independence; it means being at the mercy of more powerful forces without having the means to influence them in any way.

There are other arguments to be advanced, including the importance of Britain's potential influence on the Community's external policies from within. This should be recognized as a matter of supreme concern to the Commonwealth and other developing countries. If Britain stayed outside the Community, each Commonwealth country, in turn, would have to make its own arrangements separately with the Six (as many of them began to do after the first French veto). If Britain were within the Community, she would be the natural point of contact there for the Commonwealth countries. In the former case, the links of the Commonwealth would grow weaker; in the latter they would grow stronger. In other words, the choice is not between the Commonwealth and the Common Market, but between having both and having neither. As Mr Jenkins concludes, the issues at stake are therefore "very big ones for Britain, for the existing Community, and to a lesser although still substantial extent, for much of the rest of the world". But it needs no saying that Mr Jenkins is in no doubt which is the right way to resolve them.

He would give short shrift to those who argue that the central issue is sovereignty. If sovereignty means

the ultimate and unqualified power of decision (including the power to reverse decisions once taken), the issue is illusory because the Treaty of Rome does not affect that power in any different manner from any other treaty. Notwithstanding articles 240 (which says that "this Treaty shall be concluded for an unlimited period"), no power on earth could prevent the British Parliament from repudiating it.

That any parliament ever would choose a highly unlikely, as may be deduced from a careful reading of the two lectures which flank Mr Jenkins's centrepiece. Their theme is in effect the transitory character of national independence. In the first he shows how the United States moved from isolationism through the "special relationship" to global commitment. In the second he shows how the United States, repeating British experience over a much shorter time-span, moved from a quasi-imperialist attitude to a recognition of its future role as *primus inter pares*. The argument is tactically presented but its conclusion is unmistakable. Naturally, no one wants to hurry the Americans back into isolationism by wounding criticism. But there is equally no doubt that they welcome sympathetic analysis of their shortcomings over the past decade or so. Mr Jenkins's manner of administering salutory but unappetizing medicine manages to be both frank and statesmanlike.

The need for an army

J. C. M. BAYNES

The Soldier in Modern Society

227pp. Eyre Methuen. £3.95.

This book results from a year that J. C. M. Baynes, a regular Cambridge, spent at Edinburgh University as a Defence Fellow in 1968-69. It was published ten days before the shootings in Londonderry, which so tarnished the army's public image; the book deserves a better fate. It begins by asking fundamental questions, about what armies are for, and goes on to a little recent history and to more precise questions, like how much they cost. It concentrates on the British army, but not exclusively. In the past fourteen years, the annual cost of the army has risen from under £500 million to almost £670 million, while its actual size has fallen from 426,000 to 172,000. "Even allowing", Colonel Baynes remarks, "for modern equipment, higher standards

of living, inflation, and a host of other factors, the message is clear: it will always be an expensive struggle to keep a good army going"; and he hopes "that we do not lose the will to do it".

He spends the middle of his book investigating problems of morale, efficiency, career structure, manpower, and cost; and brings some refreshing common sense to the perennial problem of recruiting. Recruiting has now fallen into the hands of Messrs Colman, Preatish and Varley; no doubt an efficient firm.

The present type of public relations is far too glib and unsatisfying, and has a tendency to annoy serving personnel. It is doubtful, in an age of general suspicion of the advertiser, whether it has much beneficial effect on the outside world either.

A sensible last chapter maintains that the country must avoid, at all costs, being "hired towards the hopeless morass" of a revived con-

scription, and advocates instead "a completely different matter—a system of one-year voluntary military service, which young men (and why not young women too?) could go through under army auspices for purposes of general social use."

"Indeed, it is vital to see that military science becomes much more widely based than its present preoccupation with weapon and vehicle technology allows."

People who are interested in how modern societies are cemented, and how they can survive, will find much worth considering in this book. Many everyday concepts are illuminated by the comments from an intelligent, articulate soldier. The author relies rather much on quotation of a few predecessors, and is sometimes over-verbose; but the value of his book can only be denied by people so naive that they think armies today are not needed at all.

comparisons between scientific and literary truth but the general framework of thought within which these comparisons can be made:

If it is right, then the "telling stories" of science are no good for either the preliminary or the definitive stage of scientific theorizing. Professor Medawar sometimes asserts, and sometimes implies, that literature is not "about" anything at all; but in the same sense about the same reality as science—about another, wider, but perfectly genuine reality.

The hypothetico-deductive scheme, in its positivistic form, seems to suggest that science is like a piece of fiction that has turned out to be a contraption of actual happenings. Dr Helweg claims, surely rightly, that it is not like a piece of fiction at all; and as the point, very revealing about the real nature of literature, that the best fiction "corresponds to reality" a good deal more completely than photographically exact

reportage of quotidian banalities. He does not, perhaps for lack of space, develop this point. But there is certainly much to be said for the contention that, while the aim of science is to analyse the causal structure of reality, that of literature is to create an instance of "reality"—imagined, of course—in which at least some aspects of that structure are tried deeply under trivialities then usual—though remaining unanalysed. "The oases of Anna and Vronsky, or Clarissa and Lovelace or Bickin and Ursula... bear on life more sharply than just to count as 'what might be true'." The relevant criterion of "truth" is implicit in this phrase "bear on life more sharply"; and it by no means implies that if the hypothesis "Anna and Vronsky" is true that of Bickin and Ursula cannot be so also.

Among the philosophers of science, who accept that its fundamental method is based on some sort of hypothetico-deductive, rather than

purely inductive, scheme, there has been a movement, in post-Popperian times, which would see the criterion of scientific truth as not very far removed from the criterion of truth in literature just adumbrated. The best known, but by no means impracticable, channel of the thesis is S. S. Kuhn's *The Structure of Scientific Revolutions*. The hypotheses which a scientist formulates and tests are, it is claimed, cast within a certain framework of thought, a paradigm; and the degree of their correspondence with reality is assessed within this context. But the paradigm may change, and then a new type of correspondence with reality will be looked for. Science on this view is like a painter trying to draw a decent "likeness" of a sitter. There is no doubt that the sitter has definite characteristics, as, like likenesses are "truer" than others.

This is a mode of thought which has a traditional background almost

as long as that which leads to the positivistic confidence that we can definitively state what "is" in the case. Thus Blake's "Everything possible is believed in, an image of truth", and Whitehead, for whom reality consisted of "events", each of which "prehended" some relationship with every other in the universe. These are of course extreme examples, chosen to bolster the plausibility of Sir Peter's rejection of the whole notion. In the words of Dr Holloway:

"Of the concept of truthfulness which belongs essentially to the integrative literature, that in which the depths of a truth is not a foregone conclusion, but another truth, by which a touch of scorn which one cannot but detect not infrequently when literature and its values are at issue... We are back in the world of Blake. But do not believe that 'real life' is relativist at all."

This is an argument from a professional in the field of literature, which some scientists may feel is not fully

met by Sir Peter's "Rejoinder", where he narrows the issue down to the question, "Did Coleridge really grasp the idea of a synergism between reason and imagination?" (In the sense that this synergism has been formulated by Popper and Medawar himself) and proceeds to the claim, which on the material presented to us, he triumphantly justifies, that "I do not wish to appear arrogant, but on this technical and rather specialised subject I am probably the better informed and the better read." The possibility which Sir Peter does not seem ready to contemplate is that Coleridge's poetry may have penetrated more deeply than Popper's logic into this so-simple-seeming thing, what "is" indeed the case. And he might then have felt it desirable to attach some indication of direction to the final phrases of his book, an endorsement of Hobbes: "There can be no contentment but in proceeding." I agree. "Doch, aber wohin?"

Keeping the barbarians at bay

Civilization and Science, In Conflict or Collaboration?

A Ciba Foundation Symposium 227pp. Elsevier/N. Holland. £3.50.

Here we have physicists, biologists, doctors, economists, philosophers, historians, sociologists, a psychologist, and a politician discussing *Civilization and Science, In Conflict or Collaboration?* The contributors come from all corners of the world: England, France, the United States, Canada, Holland, Switzerland, South Africa, India, Japan and Venezuela. Almost all the contributors are interesting, the discussions are lively, and the symposium is an outstanding success. The most perceptive remarks are made by the politician, and the most salutary ones by the scholar from Venezuela, where there has been a history of almost no science and where there is still very little.

Those who seek to explain nihilism by the failings of scientists have much in common with those who seek to explain utilitarianism by the failings of Jews; when, obviously, no explanation of nihilism is plausible which fails to take into account that it is a phenomenon characteristic of Christian civilizations. This does not mean, of course, that other cultures may not from time to time have treated Jews, or other minorities, badly; or that political factors like those now operating in the Middle East may not from time to time produce local waves of anti-Jewish feeling. But the specific unrelenting antagonism of a thousand years is something peculiar to

Christian communities. So if one seeks explanations for nihilism, one must look not just at the Jew, but also at the psychological, religious and social structures of Christian communities. In this symposium it is Dr M. Roche, President of the National Council for Scientific and Technological Investigation in Venezuela, who points out that, similarly, anti-Semitism is not a worldwide movement, not even a movement of technologically advanced countries, but a phenomenon restricted to Western Europe, North America, and, to some extent, Japan. If one seeks explanations for anti-Semitism, one must look not just at scientists, who are much the same everywhere, but at the peculiarities of this "limited group of societies, and one must attempt to see what it is that makes them peculiarly susceptible to this ailment.

The politician in the present gathering, Dr O. Pelletier, Federal Secretary of State in Canada, sees this at once. He wastes no time on trivial remarks about the characteristics of scientists. For him the heart of the problem lies in political structures and in the relationship between these structures and public opinion. His thesis is that the rate of technological change is now so fast that the public at large is unable to assimilate the new information or adopt it. This imbalance between the production and assimilation of information results in a suspicious and antagonistic attitude towards those who generate the new information (scientists among others) and occasionally in outbursts of anti-rational violence.

The politicians who must ultimately make decisions about new information are generally no better equipped to assimilate it than the public at large; and the process of decision-making is made even more difficult by open societies by the fact that the only possible decisions are those (not acceptable to public opinion). For Dr Pelletier, then, the main defect lies in the present machinery by which political decisions on scientific matters are reached. Few have had experience in advising government on science policy would dissent from this view.

On the other hand, what the economists say in this symposium is not helpful. To some extent this derives from the limited reliability of economics as a predictive science; but, in the case of H. D. Johnson, the basic uncertainty of economic projection is further compounded by an unusually high degree of methodological confusion. Professor Johnson argues that there is no correlation between the expenditure on science in any one country and the rate of economic growth; indeed, he claims that there is a negative correlation. It takes no great insight to appreciate that the rate of overall economic growth must be determined by a multitude of different factors; and it would be rather remarkable if, in a situation where other variables fluctuate, any one factor was found to have a close correlation with overall economic growth over a relatively short period of time. It is rather like saying that there is no correlation between the state of health of the population and the level of consumption of vitamin C. This is surely true, but the role of vitamin C in maintaining health immediately

becomes apparent if it is withdrawn. Fortunately, governments are motivated more by common sense than by economic theory, and no present government would dare try the experiment of withdrawing support for science in order to see whether it really was expendable.

In a way, however, history has done the experiment for us, and Dr Roche describes the result. He gives a fascinating account of the intellectual history of Spain where, in the sixteenth century, a conscious political decision was made to suppress free inquiry and enforce orthodoxy. Dr Roche does not seek a strict correlation between the suppression of scientific investigation and the economic and political decline of Spain; but he makes a strong case for the view that it was an important, if not the most important, factor in the decline of the country. His sketch of the history of a society in which science and scientific modes of thought were not practised leaves one in no doubt that it is not the sort of society a sane man would advocate.

What has the philosopher to say? Stephen Toulmin argues that scientists are ultimately to blame for the current anti-science movement, not, as Dr Pelletier believes, because they are primarily responsible for our present "indigestible" high rate of intellectual and technological change, but because they have in the past decades exploited their special relationship with governments in a socially irresponsible way—irresponsible in the sense that they have not been answerable to the people whose lives have been affected by their actions. Professor Toulmin considers that the history of scientists in

government is another *trahison des cleves*. There is a small element of truth in this, but the analysis remains unacceptable, superficial. There is, and always has been, an area of secrecy at the centre of government; and those who advocate an open society must always seek to limit or reduce this area. There are, of course, scientists who advise government under conditions of secrecy; but these same conditions apply to an enormous range of government advice in which scientists play no part. When scientists advise government they behave neither more nor less responsibly than economists, historians, or civil servants. It is no solution to social problems to advocate that scientists should have greater moral virtues or greater foresight than other educated men.

Sir Alan Bullock, with the long view of the historian, makes the important point that the current wave of "emotion" is not directed only against science; it is an anti-intellectual, even anti-cultural, movement, a form of primitivism that sweeps aside all attempts to solve problems by rational judgment. The anti-science voice is a emotional and mystical; it shows fear and resentment, but little understanding. In a lecture on the nature of scientific revolutions given in Oxford last year, Jacques Marleau-Ponty asked whether there really was any alternative to scientific inquiry; his answer was: "Ou la science ou la barbarie."

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Matriarch of the Kennedys

GAIL CAMERON:
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Begun in a spirit of illiance against the Church's traditions of Alexander VI, the correspondence continued in the same pattern with sallies, pithy technical displays of erudition (which surely put the source of patronage and tryings-out of passages became incorporated in *Hadrian's Secretum*, in ways exemplified by Donald Weeks in his careful note) ended hastily in 1911 (XIII):

What with your allegiance to the Pope, Grandmaster of Sancti Sophia who employs his mother attack my Mother on his behalf & infatuation for that brahminic insurance agent R. H. Benson, I quite understand that you prefer silence to a silky silence.

interruptus

clothes, the last of which are soon removed to reveal the sexual organs.

If Miss Fabian's aim is to make coition sound completely uninteresting, then she has pulled off this tricky feat magnificently. The mechanics of the sexual act are described in detail but without feeling. Far from being the hard-boiled stuff it purports to be, the world of this book belongs strictly to the fiction of large circulation women's magazines: "his eyes twinkled blue and his henna'd hair glowed like a luh-mund his head. He swayed his lean body across the gang-plank. . . ."

The writing is atrocious, the observation is feeble and there is not a glimmer of wit—in short the book has nothing to recommend it. Readers who are extremely easily shocked, however, may possibly find that it holds their attention.

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JOHN MCKINLEY

Only think of Mrs. Hoker's husband dead!—Poor woman, she has done only thing in the world she could

All things considered, then, Hodge must be credited with having done a good job. She has no facts, because there are no facts. It is, indeed, interesting to compare her book in this respect

Begun in a spirit of illiance against the Church's traditions of Alexander VI, the correspondence continued in the same pattern with sallies, pithy technical displays of erudition (which surely put the source of patronage and tryings-out of passages became incorporated in *Hadrian's Secretum*, in ways exemplified by Donald Weeks in his careful note) ended hastily in 1911 (XIII):

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THEORIES OF PERCEPTION—of what happens to bridge the extraordinary gap between sensory stimulation and our experience of external objects—have a long history, of astonishing variety. Speculation goes back to the beginning of recorded philosophy—and scientific work on perception escapes the philosophical questions and dilemmas only when it narrows inquiry by over-blinking specialization. How we see remains essentially mysterious after a century of intensive experiment, on animals and on men, by such a variety of scientists that aims and communication can be lost between them. An adequate theory should include not only the favoured sense of sight but also: hearing, touch, hot and cold, taste, smell, balance and position of the limbs, the various kinds of pain; and tickle, from its irritation to sensory pleasure and delicious laugh-making.

To the philosopher and the experimental scientist, it is how we see that offers the most exciting questions, with hearing the runner-up, for sight dominates by its giving us immediate external reality. By simply looking we seem to understand what we see. This close association between seeing and knowing makes the sense of vision attractive not only to philosophers but also to experimental psychologists and physiologists who hope to discover in the brain mechanisms serving our experience and knowledge of the world. "By coming to understand how we see might we not at one stroke also discover how we think, remember, formulate hypotheses, appreciate beauty and—most mysterious—accept pictures and words as symbols, conveying not merely present reality but other realities distant in space and time? And so seeing involves all this, surely the net of understanding must be cast wide.

Perceptual theories form a spectrum—from *passive* to *active* theories. Passive theories suppose that perception is essentially camera-like, conveying selected aspects of objects quite directly, as though the eyes and brain were undistorting windows. The baby, it is supposed, comes to see not by using cues and hints to infer the world of objects from sensory data but by selecting useful features of objects available to it directly, without effort. Information processing or inference. Active theories, taking a very different view, suppose that perception is constructed, by complex brain processes, from fleeting fragmentary scraps of data signalled by the senses and drawn from the brain's memory banks—themselves constructions from snippets from the past. On this view, normal everyday perceptions are not selections of reality but are rather imaginative constructions—fictions—based (as indeed is science fiction) more on the stored past than on the present. On this view all perceptions are essentially fictions; fictions based on past experience selected by present sensory data. Here we should not equate "fiction" with "false". Even the most fanciful fiction as written is very largely true, or we would not understand it. Fictional characters in novels generally have the right number of heads, noses and even many of the opinions of people we know. Science fiction characters may have green hair and an exoskeleton—but is this novelty not a mere re-stuffing of the past of our experiences? It is doubtful if a new "enid", suddenly introduced, could be meaningfully described or seen.

The passive paradigm may, at least initially, seem more acceptable as a scientific theory. It fits well with—and indeed essentially is—the familiar "stimulus/response" notion in which behaviour is described as controlled directly by prevailing conditions. This is also familiar in engineering: in most devices input directly controls output; and much emphasis is put on measuring input and output, and relating them by transfer functions or something equivalent, to describe the system. B. F. Skinner in his behaviourist claims to do much the same—to give at least a statistical account of the relationship between stimulus (input) and behaviour (output) in animals and men. An engineer would go on to suggest "models", of what the internal mechanisms might be,

Seeing as thinking: an active theory of perception

BY RICHARD GREGORY

which transform inputs into the outputs. But, rather curiously, Skinner does not attempt to make this further step, and apparently distrusts it. He says remarkably little about brains, and at times denies memory and indeed all internal processes. His description is purely in terms of input-output relations, with emphasis on how the probability of certain kinds of behaviour is changed by environmental changes, especially "reinforcers".

Skinner himself has little interest specifically in perception, but passive theories of perception are in many ways similar. They have the same initial scientific credibility, but are (I believe) essentially incorrect. They deny that perception is an active combining of features stored from the past, building and selecting hypotheses of what is indicated by sensory data. On the active account we regard perceptions as essentially fictional. Though generally predictive, and so essentially correct, cognitive fictions may be wrong to drive us into error. On this active view, both veridical (correct-predictive) and illusory (false-predictive) perceptions, are equally fictions. To perceive is to read the present in terms of the past, to predict and control the future. This account is very different from the passive story implied by Skinner's behaviourism, and most ably propounded by James J. Gibson and Eleanor Gibson (whose article is on page 711).

Why should one want to push all this stuff about "brain fictions" (as I do) when stimuli and responses are so easily observed, and so like the usual stuff of science? The essential reason is (I believe) very easily demonstrated, by common observation and by experiment. Current sensory data (or stimuli) are simply not adequate directly to control behaviour in familiar situations. Behaviour only continues through quite long gaps in sensory data, and remain appropriate though there is no sensory input. But how can "output" be controlled by "input" when there is no input? The fact is that sensory inputs are not continuously required or available, and so we cannot be dealing with a pure input-output system. Further, when we consider any common action, such as placing a book on a table (a favourite example of philosophers) we cannot tell from retinal images the table's solidity and general book-supporting capabilities. In engineering terminology, we cannot monitor directly the most important characteristics of objects which must be known for behaviour to be appropriate. This implies that these characteristics are inferred from the past. The other highly suggestive—indeed dominating—fact is that perception is predictive. In skills, there may be zero delay between sensory input and behaviour. But how could there be zero delay, except by acting upon a predictive hypothesis? (Surely J. J. Gibson's description of perception as selections from the available "ambient array" will not do: it would have to be a selection from a *future* "ambient array" for the passive account to work; but this evokes a metaphysics we cannot welcome. The significance of prediction in perception has been for too long almost totally ignored.)

It is the fact that behaviour does not need continuous, directly appropriate sensory data that forces upon us the notion of inference from available sensory and brain-stored

data. This account is very much in the tradition of the polymath nineteenth-century physicist and physiologist, Hermann von Helmholtz, who described perceptions as "unconscious inferences". This notion was unpalatable to later generations of psychologists, who were over-influenced by philosophers in their role—sometimes useful, but in this case disastrous—of guardians of semantic inertia: objecting to inference without consciousness. But with further data on animal perception, and computers capable of inference, this essentially semantic inhibition has gone. Curiously, though, the kinds of inference required for perception are remarkably difficult to compute.

The recent engineering-science of Machine Intelligence is finding heavy weather designing computer programs to identify objects from television camera pictures. The reason seems to be (apart from the very large and fast computers required to perform the operations serially) that the computer requires a vast amount of stored data of common object properties, with ready and rapid access. It requires, in short, what we have called "fictions" to augment and make use of data monitored from the world by its camera eye, and in machines dealing with real objects—its touch probes. In short: we may think of perception as an engineering problem, but it is a highly utopian problem even for advanced computer engineering, and it requires a special philosophy which is unfamiliar in science, because only brains and to a limited extent computers are cognitive.

The notion that interpreting objects from pictures is a "passive" business must strike the computer programmer engaged on this problem. Machine Intelligence, as an extremely unfunny joke. His problem is to devise active programs adequate even for perceptual problems solved by simple creatures, long before man came on the scene. The notion of perceptions as predictive hypotheses goes beyond available data is alien and suspect to many physiologists. Cognitive concepts appear unnecessary, even metaphysical—in to be explained away by physiological data. Certainly more physiological data are needed; but will they tell us by what mechanisms the brain's hypotheses are mediated, or will the "brain fiction" notion drop out as unnecessary? Prediction is dangerous, but there are surely strong reasons for believing cognitive concepts to be necessary. In the first place, it is not surprising that special concepts should be required for brain research, because the brain is unique, in nature, as an information handling system (or at least it is on an active theory of brain function.) With the development of computers, we now have other information handling systems to consider: it is interesting to note that to describe computers, "software" concepts are adopted, similar to what are essentially cognitive concepts, are very familiar in all the sciences, but hidden under a different guise—the *method* of science. Generalizations and hypotheses are vital to organized science, for the same reasons they are essential for brains handling data in terms of external objects. Science is itself not "passive" in our sense, but puts up hypotheses for testing, and acts on

hypotheses rather than directly on available data. Scientific observations have little or no power without related generalizations and hypotheses. Cognitive concepts are surely not alien to science, when seen as the brain's (relatively crude) strategies for discovering the world from limited data—which is very much the basic problem of all science. Scientific observations without hypotheses are surely as powerless as an eye without a brain's ability to relate data to possible realities—effectively blind.

The full power of human brain fiction is apparent when we consider how little current sensory information is needed, or is available, in typical situations. Here we do not need initially to consider particular experiments—and indeed the intentional simplification and restrictions of the laboratory environment can make the point less obvious: that the behaviour is generally inappropriate to features of the world which are not continually available to the senses. When you trust

your weight to the floor, or your mouth to the spoonful of food, you have not monitored the ground's strength or the food's palatability; you have acted on trust, based on generalizations from past events—and neither generalizations nor probabilities exist, except in your brain, for they are not properties of the world. Now suppose that you gave up acting on informed guesses and demanded continuous, direct selections of reality. How would you get on? Would you not avoid, or at least never fall through rotten floors—never be misled by gongs beyond the evidence? Yes, indeed, if there were sufficient evidence available, but the fact is that there is frequently no possibility, or time, for testing hypotheses or food. They must be taken on trust—trust based on the past as stored in the brain.

We have arrived at questions which may be answered by experiment. We can measure performance, in the partial or total absence of sensory data, and establish whether and how far perception and behaviour continue to remain appropriate. We find that we can continue in drive or walk, or perform laboratory eye-hand tracking experiments, through gaps in sensory data; and not merely inertly, for we can make decisions and change our actions appropriately during data gaps. We must then be relying on internal fiction of the world—which in unusual situations may be false. If the situation is unfamiliar, or changes in unpredictable ways, then we should expect systematic errors, generated by false predictions. Errors and illusions thus have great importance for active theorists: they become obsessively used tools for discovering the underlying assumptions and strategies of the perceptual

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Descending on England

RUPERT C. JARVIS

Collected Papers on the Jacobite Rising
Vol 1: 294pp. Vol 2: 342pp.
Manchester University Press. £3.60 each.

Forty-four years ago Namier advocated the study of the "ordinary men" in the background of history, the "dark, dumb, nameless crowd". In a collection of papers of which he would warmly approve, Rupert Jarvis reverses those epithets. "What has been so much neglected in 'history'," he observes, "is not only 'what people did', but what ordinary people did locally." That neglect is here brilliantly repaid, with industrious research, skilful analysis, neat writing, a dry humour, and the imaginative touch that brings the anonymous crowd to vivid life.

The collection's title makes it sound more comprehensive than it actually is. It deals mostly with the 1745 rising, but nothing on 1719, and, apart from two valuable essays on Cope's forces, studies the repercussions of the Jacobite attempt only on England, mainly north-western England. Deliberately it does not re-tell the well-known story, in whole or in part, but by examination of local records, the acts and accounts of local lieutenants, justices of the peace, parish constables, postmasters and revenue officers. It is endlessly illuminating on the Highland army's march to and from Derby, and corrects many deep-seated errors.

It is now clear, for example, that while espionage played only a small part on both sides and military intelligence was poor, a continuous stream of fairly reliable news of the Highland army's strength and progress reached London through the postmasters. Curiously enough Sir Everard Fawcener, Cumberland's military secretary, was able to make good use of the system since he happened, in a casual eighteenth-century way, also to be postmaster general.

Mr Jarvis gives also a fascinating

exposition of how the Jacobite army financed its march. He notes the frequency of newspaper reports "that broadly speaking the conduct of the invaders, surprisingly, was exemplary." The postmaster of Appleby reported: "They pay for everything and are very civil." This they could well do because, in England as in Scotland, in 1745 as in 1715, they simply collected the public moneys, "an obvious exercise of precisely those powers of sovereignty that a pretender claims." Since the customs, excise and postal officials who were skinned of the money they had legally collected could all produce receipts for what they had had to surrender, the loss fell to the Crown.

Undoubtedly this helps to explain the apathy of civilian resistance to the invasion of England, but there are different reasons for the ineffectiveness of the militia. Lord Leutenants and deputy lieutenants "felt themselves impeded by certain not fully understood legal difficulties," mostly attributable to Parliament's resentment, two generations old, of the Crown's control of military forces. Legal uncertainty regarding how the militia might be called out could not be rectified while Parliament was up and the King in Hanover, and the Bill ultimately rushed through was not satisfactory either. It was even doubtful how the militia could be paid.

Then what were they to do? Wade thought their only use would be as "small parties who may fire from every hedge and keep the rebels from separating from their main body." Others thought they should disperse in case their arms should fall into enemy hands. Here and there the legal difficulty was got round by authorizing volunteer regiments.

In these essays countless formerly useless people take on life and character. Outstanding examples are Thomas Pittinson, postmaster of Carlisle, deputy mayor and landlord of the Bush Inn, and William Fowden, a Manchester constable accused of collaborating with the rebels

but proved by many witnesses to have acted only under duress.

Other essays examine the precautions—not the panic of the Jacobite legend—in London and (with meticulous bibliographical research) the vigorous patriotic pamphleteering of Henry Fielding.

The only regret is that Mr Jarvis did not, with the exception noted, extend his range to cover Scotland. Apart from the state papers relating to Scotland he has consulted Scottish sources hardly at all. This neglect explains some small errors. It was not Cumberland's decision that caused Fort William, alone of the posts of "the Chain" through the Great Glen, to be so firmly held. Long before he reached Scotland the governor had been ordered to hold it "to the last extremity", and measures were taken for its reinforcement and provisioning. If Mr Jarvis cannot find any reference to the part taken in it by the port of Liverpool, this is not because such references are not in print. And the assertion, made twice, that the Duke of Argyll "went off to leave Scotland to her fate" is the one instance in which Mr Jarvis accepts without query a partisan assertion of the time; it happens to be the reverse of the truth. Argyll was in fact extremely active very early on to suppress the rising. But his hands were tied like the English lord lieutenants, and even more so both by the Disarming Acts and the political hostility and departmental dithering in London. Not till October 22, 1745, when the Highlanders were about to march south from Edinburgh, was he authorized even to call out the Argyll militia.

These points are the smallest of blemishes on a work which future historians of the 1745 rising, following the old pattern of chronological narration from which Mr Jarvis has purposely turned aside, will neglect in their peril. The kind of material he so skilfully explores is less rich in Scotland but certainly ample, and it can only be hoped that Scottish historians will imitate both his industry and his method.

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Communal myths

EUGENE KAMENKA (Editor):

Paradigm for Revolution? The Paris Commune 1871-1971

102pp. Canberra: Australian National University Press.

This collection of five essays by specialists on French history in Australian universities, though it just missed the centenary of the Paris Commune, is a good deal more sensible and much less pious than most of the publications that came out last year.

The first essay, "The Paris Commune: The last episode of the French Revolution or the first dialectical step of the proletariat?", is by R. B. Rose, a specialist on the Emancipators and Babouvism, who likes to entitle his books and articles in the interrogative form. It is a sober and pragmatic reassessment by a trained historian. Professor Rose makes the point that the revolutionary movement of 1870-71 owed more to the Montmartre artisan than it did to the proletariat from La Chapelle. Few historians would disagree

with this, though some might have doubts about "Parisian heroism". The *féderés* were, on the contrary, most unheroic; it was for this reason that Trochu had attempted to put an end to the slaughter, and that Rossel had complained bitterly that he could do nothing with troops that were drunken, undisciplined and cowardly. "Parisian heroism" is a myth-strewn field. This is not to deny that some of the leaders of the Commune conducted themselves with great personal heroism. Others, however, simply want to ground, emerging a little later in Soho, Brussels or the Jura bernols.

The second essay, "Socialism and the Commune", by Maximilien Rubel, is merely an exercise in orthodox Marxist theology. But the third, "Reflections on the death of an Archbishop", by Austin Gough, an Australian historian who has already written a most original and amusing essay on Cardinal Pie, is first-rate. He reminds us that the most ferociously anti-clerical of the

Commune leaders were intellectuals, medical students, sons of professors at the Collège de France, like the hateful Rigault, plus a certain number of failed students. These were the people morally responsible for the shooting of Mgr Darboy, a moderate, liberal Gallien.

The next essay, "Some British reactions to the Commune", by F. B. Smith, is much the best contribution to this little-known subject to have appeared in the past year. John Morley took a racialist view of the whole episode, coming at one with "many of his countrymen, who regarded the Celts, the French, the Welsh and the Scots, let alone the Irish, as lesser breeds ruled by their emotions, incapable of submitting to the rule of law." *The Observer* and *The Times* put it all down to alcohol. More favourable interpretations were expressed by the Communist Oxford lawyer, Frederic Harrison, and by E. E. Bowen, a master at Harrow, who had been in Paris during March-April 1871 and had been impressed by the good order, moral fervour and enthusiasm of the supporters of the Commune. The suppression of brothels was considerable acclaim in North Country circles. The English working class seems to have been largely indifferent to the Commune, though some chapel elements were enthusiastic about the attacks on churches and convents; the Commune must have some good in it if it set about property. But probably the most important effect of the Commune on England was to have killed republican sentiment there.

Eugene Kamenka himself is concerned with the most recent myth of the Commune: that promulgated by the Chinese press since 1949.

Urban models

PETER CLARK and PAUL SLACK

Crisis and Order in English Towns 1500-1700
364pp. Routledge and Kegan Paul. £4.75.

This resourceful series of essays is the product of a new generation of historians who, with an infectious enthusiasm, reveal considerable zeal for research and study a genuine concern for their subject. Their writing reflects modern ideas and attitudes, including greater emphasis on numerical and a commendable desire to tune in to neighbouring disciplines. In the process some strange jargon appears; but fortunately, such phrases as "eschewing the multiplex relationships of kin-oriented society" interrupt only rarely the otherwise smooth flow of intelligible English.

The writers focus upon London and six leading provincial towns (Norwich—the second town in the kingdom by 1700—York, Chester, Coventry, Salisbury and Canterbury) and several of them use the local records to open up a theme of much more than local interest. Charles Phipps-Adams, for instance, makes use of the Coventry archives to study the role of ceremonial in the lives of its citizens in pre-Reformation times and contrasts the first half of the calendar year, with its succession of public religious celebrations, with the second half, when there was a dearth of them. He goes on to trace the triumph of the secular over the ritualistic, and the spread of secular occasions, such as the October Fair and the mayoral inauguration, into the second half of the year. Peter Clark uses the rich biographical information contained in the ecclesiastical court deposition books for Canterbury diocese in order to indicate the amount of migration within and into East Kent—and particularly Canterbury, Maidstone and Faversham—between 1580 and 1640. Most of the migrants were, as one would expect, young and short-distance travellers; but a scatter came from farther afield, including the North of England. Some attention is paid to the class background of these people and the means whereby they learnt about local employment possibilities. It is a pity, perhaps, that Mr Clark did not raise some of the possible implications of longer-

distance migration. Presumably this brought with it some awareness in the South-East of conditions in distant parts of the country; and presumably, too, the Cambridges, Lancastrians and Yorkshiresmen who had found a living in East Kent did not entirely lose contact with the families they had left behind. But how was it maintained?

Paul Slack's contribution brings out very clearly the devastating effects of bad harvests and pestilence upon the prosperity of a place like Salisbury, and the initiative taken by the authorities there in grappling with the problems of poverty which became almost overwhelming at such times. The corporation set up a workhouse, ran a brewhouse to divert some of the town's plentiful profits from drink to the support of the hard-pressed poor rate, and created a municipal storehouse in which the poor could secure the necessities of life at cost price by means of special tokens. The same careful use of source material is shown by M. J. Power in his piece-together of a surprisingly full account of housing development and housing standards in East London in the seventeenth century. Maps, hearth tax returns and inventories are very skilfully used, together with deeds, surveys and other papers, hauled down at various London repositories and even at the offices of an insurance company.

The use here of records to be found in, and relating to, particular places ensures one to wonder to what extent urban history is still a definable subject in its own right. There are, it is true, some contributions here—D. M. P. Nislin on the trade guilds of York, A. M. Johnson on policies in Chester between 1640 and 1662, and Penelope Corfield on Norwich in the late seventeenth century—which are of a more traditional sort and readily recognizable as urban history. But, for the rest, the intention has clearly been to use urban records to make significant national observations. This point is best exemplified by D. W. Jones's splendid essay on London merchants and the crisis of the 1690s which discusses, inter alia, balance of payments problems and the significance of the changing fortunes of the Iberian wine trade; all most ably done, but is it any longer urban history? Is a new generation pointing the subject in a promising direction, but in a direction in which it becomes merged—and even submerged—in the broader realms of history?

Party pieces

J. A. W. GUNN:

Factions No More
275pp. Cass. £4.50.

J. A. W. Gunn has compiled a valuable anthology, or rather sourcebook, of party literature ranging from Halifax to Charles James Fox, taking in on its way many obscure scribes whose words, like the deposit of the coral insect, has built up the peculiar opposing reefs we know as the party system. Much of this material is of the kind that can be found only by patient and rigorous combing of journals and ephemeral literature, and this Professor Gunn has clearly done.

A collection which has the purpose of illustrating the development of something which has Professor Gunn says is "singularly bereft of intellectual parentage... scarcely an idea at all", is bound to encounter difficulties. It is in the nature of party writers to clothe with respectable doctrine the ambitions of those on whose behalf they are writing. They are, in fact, no more on oath than the writers of epitaphs. There is a certain refreshing simplicity about the compiler's stance, that "the 'what happened' of history is most helpfully answered by explaining what people thought they were doing"; but the only evidence of what people thought they were doing is what they said, and in politics that is not always reliable. Nor, even when evidence may be given to political writings,

does it follow that the author and his sponsors knew what they were doing.

These limitations on the historical value of party literature do not deprive it of importance, nor is the development of the party system to be treated as a mere gloss on personal ambition and economic rapacity. "Nuncius, because he pointed to 'interest' as the dominating feature of eighteenth-century politics, has been accused of denying the significance of party, whereas he in fact considered 'the rise of party' to be the most important feature of the period following the one he concentrated on. Historians who were attracted by his methods and what appeared to be his clinical ruthlessness were the ones that tried to write doctrine out of political history."

Professor Gunn's contribution will therefore remain a valuable one for the study of the system of "limited suffrage" which is still evolving today in our parliamentary government. The degree to which the opposition has become institutionalized in the past twenty years, with "Shadow Ministers" and even the rudiments of a "Shadow Civil Service", has yet to find its historian. No doubt the system is exposed to denunciation by every conscientious extremist as a sham, and can work effectively only when there is broad agreement about an institutional framework and its conventions; but these, it must be remembered, are needed for all forms of lasting government.

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Beyond mere cognition

ROGER POOLE

Towards Deep Subjectivity
151pp. Allen Lane. The Penguin Press. £2.25.

There was a time when the left claimed to be the party of reason; it is now the party of subjectivity. This subjectivity runs so deep as to recommend total immersion in the self. Says Roger Poole: "We live in a world totally relative and are ourselves relative aspects of relativity." Subjectivity and relativity are posed against the imperial objectivity of science. The fear of science engenders a mutation of consciousness which communicates not through words and abstractions but through the language of the body deployed in ethical space. The body imparts grace through signs and indirectly subjects both the objective reality of the fifteen body and the supposed corpus of objective scientific knowledge. Only the cult of violence destroys the efficacy of these signs. It doesn't signify. Nevertheless, a new age is being buffeted, formed according to a fresh paradigm of knowledge which, though as yet barely formulated, grasps wholes and not parts. It is itself made whole by its capacity to heal the split between discrete disciplines, between knowledge and sensibility, mind and body, ought and is, poetry and prose, meaning and form, theory and practice. There's wholeness for you!

Blinker indented Navion and called for "More Deo"; Dr Poole indents Galileo and Descartes. The fall into mere cognition occurred in the seventeenth century and it is from that fall we are now to be redeemed. Like any prophet of redemption Dr Poole calls for strong crying in the wilderness and for commitment. Time, he declares, is running out and the world will given over to the malign domination of the objectivist lie. The redeemed of the new age operate within the world like a secret leaven, incapable of being located or understood by the objectivist systems of detection. The princes of the political kingdom and the principalities of science can only make their defences sure by capitulating to the subjectivist enemy. Instead they are incarcerated in their own criteria, arrogantly certain of the limited sector of reality they have made their own. That's why "everything remains to be done and time is growing about".

The long-haired Gnostics

ANTON C. ZIJDERVELD

The Abstract Society
180pp. Allen Lane The Penguin Press. £2.95.

There must be very few sociologists capable of writing with originality about the problems of philosophy, anthropology, the meaningful transactions which take place between man, his institutional environment and his culture—or, more simply, about the question of how men come to feel at home in the world. Most recent writers, showing an appropriate modesty, have confined themselves to expounding, comparing, and commenting upon the theories of the masters: Durkheim, Marx, Weber, Schutz, Thomas and Mead. Anton C. Zijderfeld, however, does far more than that. True, he does comment on the masters, and there is more clarity, understanding and suggestive insight in the twenty or so pages in which he does so than has been seen for a long time. But he also strikes out boldly himself, to give his own analysis of the way in which modern men—that is, young men and women of the 1960s and 1970s—have become estranged from their social and cultural world, of the way in which they protest, and of the dangerous misunderstandings and miscalculations inherent in their kind of protest. It is not surprising to learn that Dr Zijderfeld is a pupil of Peter Berger, or that he came to sociology by way of theology; but it is a tribute to him to say

that in the penetrating clarity of his argument he sometimes actually exceeds his teacher. Most protest in recent years has been marked by beliefs about men and society which Dr Zijderfeld sees clearly expressed in the writings of Luther, and, before that, in Gnosticism. If society is an externally experienced and irritating fact, the answer of protest has been to withdraw into the inner self and to seek a more authentic world there. This was especially evident in the 1960s, when the alienated young rejected structural solutions like those proposed by Marxists, and chose instead simply to withdraw themselves from any affirmation of support for their culture and try to do their own thing in their own way. This was the true of the "Anerchists" and the "Activists" whom Dr Zijderfeld distinguishes from the "Pure Gnostics" as it was of the "Gnostics" themselves. What he is seeking, however, is a solution to the problem of living in the world authentically, which recognizes that the life of the inner self cannot be lived except through engagement with other people, with roles, with meanings and with institutions. In the terms suggested by W. I. Thomas, what Dr Zijderfeld is seeking to define is the life of the creative man who seeks to make the world which makes him, in contrast with the phillistine who simply signs on to support what institutional values exist, and the bohemian who rejects these values in toto and offers nothing in their place. The alienation of modern man is a new phase in a recurrent process,

what the establishment allows us to experience. So we are not to trust that particular subjectivity. All subjectivities are equal, but some, especially those who agree with Dr Poole, are more equal than others. Dr Poole is stuck on the paradox that a man who claims to have clear and imposing evidence must adduce a logic of justification and criteria of validity. Just affirming that subjectivity is in the end more objective than objectivity is not enough.

Indeed, it is sheer self-indulgence and very much of the kind that has emanated from humanists, English departments and literary gentlemen for a very long time. It is an excellent thing that more and more people in universities are coming to believe what the rest of us have rarely doubted: that the world in its wholeness is really there, that a tree, *fans dea*, is a tree. But having rediscovered the world it is necessary to live in it and to encounter a hard, relentless otherness which you must first invite to impose on you if you are to impose on it. When a rocket goes to the moon it is a triumph over the given based on a profound subjectivity; the given, achieved by those objectivists who are the subject of Dr Poole's attack.

Of course, in a sense, one must welcome what he says: the world is more than what is quantifiable and the domain of truth is wider than the doors of scientific verification. But in order to show this his work is quite typical of the metaethical genre he represents: he tries to do everything at once, jumbles up desire and fact, confuses levels and modes of judgment; and indeed he almost seems to suggest in his citations that philosophical views are only worth considering if their proponents are not proven political virtues. (Carlyle and objectivists.) Like Russell and Chomsky seem to be treated seriously because they've sided with the political angels.)

This book is one of the best claiming to presage a new paradigm of knowledge. In the Kuhnian sense. Yet it is just a version of an older humanism, backed by a proper distrust of violence, and in its deeper structure is almost identical with a very much older paradigm which in its time also called itself new—the New Testament. But it is the New Testament diligently translated into a modern heresy: epistemological antinomianism.

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"computer" by which we infer—not always correctly—external objects from sensory data.

Looking at books written by passive and active theorists, we find an amusing difference between their indexes. Passive books devote much space to stimulus patterns, but very little to the phenomena of perception: spontaneous reversals in depth, changes into other objects, distortions, perceptual paradoxes in which the mind reels by being apparently confronted by logically impossible objects. Active theorists fill their books with examples of such phenomena, interpreting them in various ways, while the passive theorist ignores them, or writes them off as too trivial to concern him. But neither uncertainty nor ambiguity, neither distasteful nor paradox, can be properties of objects: so how can we perceive uncertainties, ambiguities, distortions or paradoxes if perception is but a passive acceptance of reality? This simple though surely powerful argument is not raised or answered by passive theorists. By playing down the obvious phenomena of perception (such as illusions, found as children's puzzles) passive books may look academically safe—but at the cost of leaving out what is most interesting.

We may now return to the point that, although we regard brain function as physical, physical and engineering concepts are not adequate for describing some aspects—especially perception of objects. This only appears to be a metaphysical statement if an extreme reductionist view of science is adopted. This matter is controversial: there are eminent scientists who hold that knowledge of a hydrogen atom and the laws of quantum mechanics are sufficient to describe, in principle, any physical situation. Others hold that even common effects such as friction, heat, inertia or gravity (let alone brain function) could not in principle be described in these elementary terms. They hold that with increased complexity and organization new properties arise requiring new concepts to describe them. It would certainly be difficult to ascribe the notion of "cognitive fictions" to a hydrogen atom (but it would be equally difficult to ascribe such concepts as servo-control, or even image-forming—so this is not a special objection to the "cognitive fiction" notion.)

There is a strong reason (apart from conservatism) why we wish to separate descriptions of aspects of brain function from physics. This is however a very tricky problem, easy to overstate and to misunderstand. Granted that brain activity is physical, we wish to hold that brain states representing information and problem-solving are not usefully described in terms of physical restraints. Consider the black marks (letters) on this

page: They are physical (ink absorbed by paper), but their arrangement, surely, is not to be understood by the principles of physics. For this we must call upon English spelling and grammar, and upon the structure of what I am trying to say. In the vital respect of their order, they are free of the ink and paper of which they are made. If their order were determined directly by their material and its physical properties (as in crystal structure) then they could not serve as symbols. Belong in this sense free of physical restraints, and given receptive brains (or computers) then they can serve as symbols: to represent objects in other time and space; or abstractions which do not exist, in the sense that objects exist. This is true for all symbols: pictures, words, mathematical and musical notations, video and audio tapes, computer tapes. But symbols are powerless (or are just like any other objects) in the absence of brains or other information-handling systems. Evidently symbols must affect brains in some more or less lawful manner; but for this to be possible the relevant brain states must—like the typist's or compositor's characters—be free to adopt information storage and representing orders. So they must in this rather limited sense be free of physical restraint, though not quite isolated from the rest of the physical world for learning and perceiving to be possible.

The celebrated (and I believe essentially misleading) Gestalt theory of perception postulated physiological restraints to explain many visual phenomena, such as preference for, and distortion towards, figures of "simple" and "closed" form. Visual forms were supposed to be represented in the brain by similarly shaped electrical brain fields—circles by circular brain traces, presumably houses by house-shaped brain traces. These brain traces were supposed to tend to form simple and closed shapes, because of their physical properties; much as bubbles tend to become spheres, as this form has minimum potential energy. Now this implies that visual "organizations" and distortions are due to physical restraints and forces which will not in general be relevant to the logical problems the brain must solve to infer objects from sensory patterns and stored data. This is quite different from a cognitive account of perceptual distortions, and other phenomena which may be supposed to arise from misapplication of strategies quite apart from the physiology involved. Using a slide-rule, an error may be due to physical errors in the rule itself, or to misapplication of the rule for the problem in hand. This is exactly the distinction involved here, between physiological and cognitive errors.

We should expect physiological restraints to produce the same effects

for any object situation (for example after-images; due to retinal fatigue, to any bright light). Misplaced strategy errors should, on the other hand, be related to the kind of perceptual inferences from sensory pattern to object, being carried out. So the point is that the physiology should only produce errors when it is exerting general restraints. We should not expect this except in abnormal situations, such as when the physiological "components" are driven beyond their dynamical range. Considering phenomena of perception, such as ambiguous, distorting or paradoxical figures: do these figures upset the physiology, or select inappropriate strategies, to generate errors? In these cases, it seems to be the object significance of the figures which is relevant. So these

phenomena seem quite unlike after-images—here it is not so much the physiology as the cognitive strategies which we need to discover. This needs a different (but still a "scientific") way of thinking, and powerful experimental techniques, to discover cognitive strategies and how they can mislead.

To separate errors due to physiological restraints from errors due to misplaced strategies surely has importance beyond understanding perceptual errors. The same distinction (between physiological and cognitive processes, and how either can go wrong) might be important for understanding mental illness. If schizophrenia is errors in the brain's strategies for developing hypotheses of external states of affairs, this should be understood not only in terms of biochemistry and physiology but also in terms of the strategies by which we normally cope with things. Perhaps this matter of strategies is hidden by the apparent ease with which we continually solve problems of the utmost difficulty to computer programmers: and which receive false answers when their programs are inappropriate. Seeing a table as something to support a book upon is to solve a problem so difficult it challenges the most advanced computer technology, and yet to us it is so simple that a passive theory of perception may seem plausible. This shows that passive theories may be so misleading as to hide aspects of brain function we must see clearly to understand not only perception but all mental processes and how they can go wrong.

Recent discoveries by physiologists, especially by electrical recording from single brain cells during controlled stimuli to the eyes, are so clearly important that they tend to dominate much current thinking about perception. The problem of how sensory patterns are interpreted in terms of objects tends to be ignored. The important physiological discovery is that certain stimulus patterns (lines of cer-

tain orientation, or movement, etc.) produce repeatable activity in specific brain cells. This discovery came as an unpleasant shock to passive theorists who tend to ignore brain function. To active theorists, it gives a clue to the kinds of data accepted for building object-hypotheses. One might think from this that passive theories would drop out, leaving the field of physiology and active cognitive psychologists to work together in blissful harmony. Actually things are not quite like this: the physiological advance is so concrete, and clearly important, that many physiologists and cognitive psychologists feel that finding more feature analyzers, and more abstract analyzers, is the sole path we need to follow to understand vision. But is it? The physiological mechanisms belong discovered relate

There is more in this, for some computer programs designed to give scene analysis (recognizing objects from pictures by computer) assign selected features in the picture, and then change these probabilities, according to probabilities assigned to other features of the scene. For example, a given shape may be a box or a building. If what is taken to be a hand is above it, then the probability of the box hypothesis will be increased, and the building hypothesis decreased—for hands are generally too small and too low to be above buildings, but not above boxes. Now this gives interactions, due to conditional probabilities, which may generate visual effects in computers or brains quite like the old Gestalt phenomena, but for an entirely different reason. The reason is to be understood in terms of cognitive strategies or procedures for making effective use of data for deciding what objects are present in the scene.

In Machine Intelligence only precisely formulated theories are adequate: any gaps or errors in the theory show up as errors in the machine. At present machines perform only the simplest tasks, and are easily confused by shadows or small changes we scarcely notice.

Although the difficulties in Machine Intelligence demonstrate all too well how little we know, it now seems that we are beginning to understand ourselves—the inference mechanisms of our humanity—by inventing adequate concepts for machines to infer objects from data: to perceive our world with their metal brains and human-devised programs. Is this science fiction? Yes—but like all fiction it may be largely true.

Philosophically, this is not the end of the matter. Behaviourism, with its related passive theories of perception, is concerned with what goes on between the senses and behaviour; indeed denies that anything goes on. This may be a legitimate expedient for focusing attention upon certain questions in behavioural research; but as a philosophy it is a kind of nihilism with a built-in contradiction. We are supposed to accept the behaviourist's writings as expressing his observations, thoughts and judgments: which in these same writings he denies having. We are reminded of the poignant postcard received by Bertrand Russell saying: "I am a solipsist—why are there no other philosophers like me?"

The task ahead is to relate physiological processes not only to direct input-output links, as in reflexes, but also to the brain's logical and correlating activity endowing it with the power to predict. This will require further physiological data, and current techniques are providing extremely important new information so this will surely be available. Experiments on the phenomena of perception itself, in animals and in men—essentially on how patterns are interpreted as objects—has confusions (or at least impeding disagreements) in its philosophy, and a lack of powerful research techniques.

Lunar cartographer

ERIC G. FORBES (Editor):

The Euler-Mayer Correspondence (1751-1755)

115pp. £4.25.

Tobias Mayer's "Opera Iacobi"

166pp. £6.90.

Macmillan.

Tobias Mayer was a German astronomer, more or less eluded by fame, and now remembered by only a small number of devotees of the history of eighteenth-century astronomy. As a skilled cartographer, he did some very creditable lunar maps, and he was once well known for his tables of lunar motion, which played an important part in the history of the problem of determining longitude at sea. Six Göttingen lectures by Mayer were first pub-

lished by G. C. Lichtenberg in 1775, in the hope that the world would then better appreciate Mayer's achievements. E. G. Forbes has now published an English translation of this edition, and, separately, a translation of a collection of thirty-one letters between Mayer and the prolific Swiss mathematician Leonhard Euler. Stender as the two books are—and how expensive!—they provide an easy digest of evidence which it was previously tedious to unearth: Dr Forbes's notes should be an added incentive. That Mayer would be concerned with the prediction of eclipses, the proper notions of stars, and astronomical refraction, was perhaps itself predictable, but one of the most surprising and entertaining of the lectures is a "treatise on the relationship of colours", which attracts the longest commentary from Lichtenberg.

Some of the most interesting clues are at present coming from studies of development of perception in babies. Early changes of the nervous system as a result of experience are now being discovered, which will perhaps help to tie up, or relate, physiology and cognition. Possibly the most fundamental and rigorous ideas are coming not from biology but from attempts to program computers to see and handle object-relations. It proves necessary to make the computers develop hypotheses and select the most likely given the data from its glass eye.

There is more in this, for some computer programs designed to give scene analysis (recognizing objects from pictures by computer) assign selected features in the picture, and then change these probabilities, according to probabilities assigned to other features of the scene. For example, a given shape may be a box or a building. If what is taken to be a hand is above it, then the probability of the box hypothesis will be increased, and the building hypothesis decreased—for hands are generally too small and too low to be above buildings, but not above boxes. Now this gives interactions, due to conditional probabilities, which may generate visual effects in computers or brains quite like the old Gestalt phenomena, but for an entirely different reason. The reason is to be understood in terms of cognitive strategies or procedures for making effective use of data for deciding what objects are present in the scene.

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Professor Gregory is head of the Brain and Perception Laboratory, University of Bristol.

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'Can't you see? I have made peace'

KEITH MIDDLEMAS

Diplomacy of Illusion

The British Government and Germany, 1937-39

510pp. Weldonfeld and Nicolson. £4.75.

Geography imposes on history certain permanent truths. "We are part of the community of Europe," Gladstone said in 1888, "and we must do our duty as such." The nature of the duty changes with the centuries. It has been there from Agincourt to Austerlitz, and beyond. It cannot be escaped. Arrows have been replaced by missiles. If maps were rolled up they had to be unrolled again. Lamps may go out; we have to play a major part in relighting them. It was an English Queen who said the word "Calaïa" would be found lying in her heart. "Munich" has lain, and still lies, on the conscience of today's older generation. Some bear the scar definitely, proclaiming that there was nothing else Britain could have done. For others, it is a mark of shame. Only the unthinking ignore it completely.

Yet even to the most concerned the question occasionally poses itself whether there has not by now, in all conscience, been a surfeit of writing about it. Has not this particular bottle of the books been fought to a standstill? If any such thought accompanies the opening of *Diplo-*

maty of Illusion, it is soon banished. It will be a long time before there is another study as consummate and as coherent as Keith Middlemas's. His reading has been thorough. He has taken full advantage of the latest released British Government archives—Cabinet Minutes and Conclusions, and documents of Cabinet Committees, the Prime Minister's Office, the Foreign Office, and the Committee of Imperial Defence. He has woven into his narrative extracts from Neville Chamberlain's diaries and letters to his sisters, and his drawings on other private collections—the Templewood, Vansittart, Jaspik, and Pownall papers—lodged in various universities. At times *Diplomacy of Illusion* seems a mosaic. It is a brilliant one. Mr Middlemas has a keen, or rather a number of, themes. He develops them with scrupulous fairness. Although polemics are not his purpose, he does not fear to come to conclusions. His final "Reckoning" is firm, but judicious.

Mr Middlemas delimits his ground at the outset. His study is "orientated from the point of view of the Cabinet." Inevitably it settles into a concentration on the power and practice of the Prime Minister, Neville Chamberlain's.

sense of urgency combined with his masterful running of a largely subservient Cabinet to produce an almost unique situation in modern British government in which both Foreign Office and military advisers were subordinated

to a process of decision-making by a small inner group.

(Decision-making is at present a study very much in vogue; the reading of *Diplomacy of Illusion* could well become obligatory in some curricula.)

The inner group exceeded their mandate. Halifax's information to the Cabinet was on occasions not only selective, but at least once inaccurate. The Prime Minister's decision to visit Hitler was made before the Cabinet knew about it. At Godesberg Chamberlain broke away from his agreement with the Cabinet. Having weakened whatever bargaining position he had with Hitler, and being "moved for the first time by doubt, even despair . . . he did not seek advice from his colleagues in London." Whether a Cabinet as collectively feeble as Chamberlain's could have brought about any better outcome may be questioned. The fact remains that they were more than once kept in ignorance. Even so, the revelations from the newly released papers of what went on in Cabinet and in Cabinet Committees is of absorbing interest.

Largely personal rule—"a rigid autocracy, closed against the light of opposition and informed only by the servility of appeasement," Henderson, Wilson, and the rest—"is not sufficient to explain the ignominy of Munich. Undesirable as the nature of that rule was, it might, given an-

other man and other circumstances, have succeeded. Mr Middlemas states his main theme in the epigraph on his title-page: Sir Eyre Crowe's dictum: "Political and strategic preparations must go hand in hand. Failure of such harmony must lead either to military disaster or political retreat." Those who have argued that at Munich Chamberlain bought a valuable twelve months in which Britain could rearm, are faced with the fact that it was due to Chamberlain and then as Prime Minister that Britain was in such a vulnerable state. He was a businessman. To him finance came before strategy. He underrated Britain's economic potentialities, as her wartime achievements showed. And even after the Anschluss "the whole acceleration of rearmament" . . . was something of an illusion because the increases were won largely at the expense of the War Office and the principle of rationing was enforced as firmly as before. Lack of means led to an unjustifiable end.

At heart Chamberlain was also an isolationist. He was a man in blinkers. Neither he nor Halifax, his Foreign Secretary, was experienced in foreign affairs. Mr Middlemas says the fact that "the British Cabinet simply did not know very much about Czechoslovakia . . . lends a certain poignancy to Chamberlain's famous utterance about 'a far-away country' and

"people of whom we know nothing . . . it does not diminish responsibility. There had been a period in the past 300 years when British Prime Ministers could safely afford to be ignorant about both history and geography. . . . Now, to buy Hitler off in Europe, showed him also out of date. . . . It is fair to say that a hands-off attitude in this kind of appearance was in evidence in other crises also."

Mr Middlemas states at the outset that his book is confined "to the study of the process of government." In the main, it is. Yet although on the side opinion had little effect upon the inner group, and none on the Prime Minister, it cannot be altogether ignored. Some account is taken of it and especially of the Dominions' fear of a showdown. "This has always been one of the pro-Munich platoon's main arguments. Enough attention has not been paid to the question whether, given other conceptions guiding them, and with a greater will to communicate with the people both at home and abroad, the climate of opinion which includes Britain, might not have been different. Indeed there was little general awareness of the evil the British people had to combat. The Devil was supposed to be paid his price. The game was not delivered. There are few more tragic words in our English than Chamberlain's remark to Winston after Munich: 'Can't you see? I have made peace.'"

One other service Mr Middlemas does the reader is not to overstate the role of *The Times* under Geoffrey Dawson. That period of what might be called "Journalism of Illusion" is firmly put in its place.

VIKAS PUBLICATIONS

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DATTA, CL.: With Two Presidents: The Inside Story, 160pp. £1.50. "There is something of everything in this volume. . . . A fascinating tale" is Eastern Economic Review.

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RAM RAHUL: The Government and Politics of Tibet, 160pp. £2.00. "An interesting and original introduction to the government and politics of Tibet." American Political Science Review.

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NEW

theory that we advocate says that the act of perceiving occurs in a circular process from the sense organs to the brain then back to the sense organs, and so on. It involves exploration by the eyes of the whole array of light and exploration by the hands of the whole layout of surfaces around one. Man's delicately mobile postural system, which includes the eyes, head, hands, and body, is beautifully adapted for this activity.

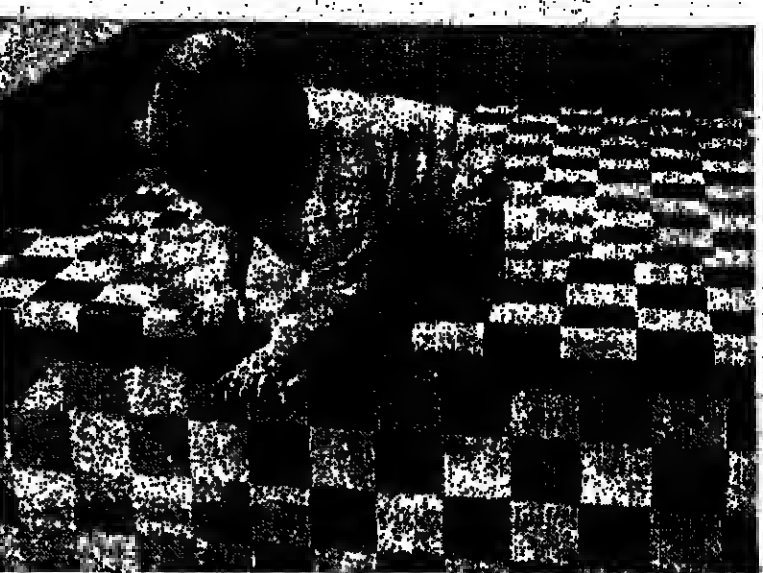
Perception therefore does not have to be conceived as the interpreting of messages or the learning of the so-called "sensory code". It is the exploring of an array, the enhancing of available information, and the optimizing of its pickup. The eyes, for example, look around, focus their lenses on details of the world, and modulate the intensity of the light when the illumination is too high or too low. For listening, the head turns to equalize intensity of input to the two ears so as to point the head towards the source of sound.

The assertion that the information in stimulation specifies its sources in the world does not imply that this information is automatically picked up. It is available, but it may or may not be perceived. An observer must extract the information from the flowing array of stimulation. And he must often learn to do so. What is it that the human observer learns? We suggest that, beginning as an infant, he learns the distinctive features of objects, the layout of places in the environment, and the invariant features of events. A human observer also perceives representations of things and places and events, of course, and in that case the information coming from the picture or the television screen is essentially the same as it is when it comes from the environment. Finally, a human observer learns to extract information from the constituents of spoken and written language, but this is information of a

quite different sort. It is not essentially the same as that which comes directly from the environment. The child's learning about the world from speech, and then from writing, is a much more complex process than learning about the world from what we call first-hand experience.

Here is a brief account of the development of perception of objects. The process begins in the newborn infant with visual attention to certain salient stimulus properties that carry information: motion, brightness-contrast, and the kind of contrast provided by the edge of a surface in the world. The infant's attention is "caught" by these properties. The world he perceives, then, is not at all a "blooming, buzzing confusion", as William James put it, for he at least sees surfaces and edges. But this is only the beginning, since objects gradually become differentiated from one another by their distinctive features, that is, by attributes that render each object different from other objects. For example, babies differentiate human faces from non-faces in their environment very early, although it is doubtful that they perceive the relations between the features of a face before they are three months old, or thereabouts. Individual faces are not differentiated from one another until six months have passed. Other properties of an object such as its size and shape are differentiated within the first few months of life, before the baby can walk or even reach. There is no substance in the old notion that such visual attributes must gain their meaning from touching and grasping.

A human face, of course, has properties that are not constant over time, as well as properties that are. The movement of the facial muscles produces different expressions that portend different events. Moreover a moving face usually produces sounds. Interestingly enough, an infant at twenty days perceives the



No-go area: testing depth perception on the "visual cliff". The baby refuses to venture on the plate-glass surface.

voice as coming from the face—but does not seem to have to learn to connect these sensations by associating the sound with the sight.

An object comes to be perceived as permanent even when it is partially or entirely hidden by another object. If a screen is drawn in front of an object so that it is gradually concealed and then gradually revealed again, an infant soon learns that it has not gone out of existence and expects its reappearance. There is optical information for its continuing existence and for its only having gone out of sight. This is not the same thing as remembering the object. Later on, when a child has learnt names for familiar objects that he has distinguished from one another by their distinctive features, he knows things about objects that he can remember and think about, but perceptual differentiation is basic to this knowledge.

The differentiation of the features of the environmental layout also develops without having to be supplemented by knowledge. When a crawling infant is placed on a platform with a visual cliff on one side and a very shallow drop-off on the other side (but not a glass surface of support on both sides; see above) the infant will crawl to its mother over the shallow side, but not over the deep side. Is this because it has "knowledge" that a cliff is dangerous? This seems unlikely. The baby has no past experience of falling and surely does not inherit racial memories of falling.

What about the perceiving of events? Events occur over time and are of many degrees of complexity, since a short episode may be embedded in a much longer episode. If perception were really based on single elementary sensations, each successive sensation would have to be somehow integrated for the total event to be perceived. Again, it seems that learning proceeds by differentiation, not by integration. For example, if an object approaches an observer on a collision course he will blink or duck or dodge so as to mitigate or avoid the collision. The optical information for this imminent event is the progressive magnification of a silhouette in the field of view. Experiments consisting of the display of this information have been done with several species of animals and with human infants. The shadow of an object is cast on a translucent screen in front of the observer and its size is increased at an accelerating rate. The adult human observer perceives a virtual object approaching him. Turtles faced with this display pull their heads within their shells. Monkeys nod and rush to the rear of the cage. Human infants, at two weeks, respond consistently with a backward jerk of the head and by raising the hands. A little later they differentiate between the information for an object on a collision course and that for an object on a non-collision course. This difference depends on the symmetry of magnification. A perception of this sort can hardly be a matter of successive sensations. It must be that optical motions of different kinds are distinguished from one another as perceptual development proceeds.

Different events involving motions are differentiated very early in life. The same animal that retreats from an approaching object may follow a retreating object. Baby chicks run away when they are faced with the optically expanding shadow on the screen but they move towards an optically contracting shadow on the screen. This response to the diminishing shadow is related to the imprinting that occurs early in the life of a young bird such as a chick or a duckling. To run after a retreating mother and then succeeds in staying with its protector and with its kind. And it demonstrates for us, incidentally, that two contrasting kinds of event are distinguished.

The early development of perception seems to us clearly to demonstrate the picking-up of information that is available in stimulation and that the supplementing of sensations by memories of past experience, or by some kind of knowledge. But, the reader may ask, what about symbols like words? They are perceived too. Aren't they at least a clear case of supplementing auditory sensations with an associated meaning?

The analysis of the information in a speech event tells us that it has three quite different kinds of information, all of which must be comprehended. There is the sound itself, the phonetic sequence, to be perceived. There is the syntactic information, the rule system that governs how words are put together. And there is semantic information, the "meaning". How does a child learn to pick up all this information? One thing seems certain—he does not simply learn by association. How then?

The first essential to this development is what the linguists call *segmentation* of the sounds of the speech stream. Speech comes in a physically continuous flow, usually without the separation we seem to hear. This stream must be analysed. It is analysed at many levels, the lowest of which is considered to be the phoneme and the higher levels being syllables, words, phrases, etc. But phonemes themselves must be differentiated. They are differentiated from one another by sets of contrastive features. These distinctive features have a developmental sequence of their own, as the linguist Roman Jakobson has taught us. The first differentiation is between the optimal vowel and the optimal consonant, and development goes on from there in a series of ordered splittings.

It seems unquestionable that this process must be one of differentiation, not of association. The features cannot be associated with anything, since, as Jakobson said, they indicate mere "otherness". The same twelve pairs of contrastive features serve to differentiate, in various combinations, all the phonemes in human speech. The phonemes themselves are abstracted, by a process of analysis, for one cannot be heard alone, chopped out of a speech segment. Yet we do all differentiate it and acknowledge its constancy. We do not learn to perceive phonological features of speech, then, by adding something on.

The second essential in the learning of speech is grammar. No one has succeeded in accounting for a child's acquisition of grammar by an associative process. A child's first

sentences are not copies of the sentences of adults, but they nevertheless follow rules of grammatical construction in accordance with the relations expressed, such as agent-action, agent-object, and action-object. What the child has learnt appears to be the result of an inductive process—the extraction of relations from information presented to him in adult speech.

The third essential in learning speech is meaning. How do words come to have meaning for the child? By associating a word with a referent, like the word "kitty" with the animal referred to? This is the answer that used to be given, but it seems unlikely. Meaning in speech is not conveyed by single words, but always in a relational context. For example, when a child says "kitty all-gone" or "here kitty," he is referring to an event in the world. The meaning of the event has been perfectly clear to him for some time. What he has succeeded in observing is the correspondence between the event itself and what someone said about it while it was occurring. Children begin by making predictions about the immediate environment. Again, there seems to be an inductive process involved, an extracting of the relation between the two kinds of information, one in the event itself and the other in the spoken words.

By this brief survey of the development of perception we have tried to show that a child uses his "senses" in an active and adaptive way to extract information that is present in the ongoing flow of events in his environment. He does not use previous knowledge to interpret his sensations, or to supplement them. He could not do so, for he must begin by picking up this knowledge from what goes on around him. The pick-up comes from differentiating the complex, embedded, relational, dynamic structure of the world.

Ernest and James Gibson are Professors of Psychology at Cornell University.

Information and Control in the Living Organism

B. H. N. Newman.
Professor of Biology at the University of Freiburg, Germany.
1971: 84 x 54 in: 160pp: 2 tons, 42 lbs
illus: limp: 412 10800 G: £1.30 net

Presents the basic concepts of information and control in the living organism in a way suitable for readers with no previous knowledge of the subject. Among other things, the book is important for the disciplines of life sciences which demonstrate signal transmission and data processing within the human organism which can be carried out without any laboratory equipment. Also explained are examples of data processing in living organisms, including lateral inhibition, the eye's adaptation to different degrees of illumination, the conditional reflex and the "learning motif".

Design for a Brain

The Origin of Adaptive Behaviour
W. Ross Ashby
2nd edition 2nd imp. 1970: 84 x 54 in: 280pp: illus: 412 04330 G: £2.50 net
Science Paperback: 412 20030 G: £1.25 net

An Introduction to Cybernetics

W. Ross Ashby
1958: 84 x 54 in: 300pp: 10 lbs and 10 lbs: 412 05770 G: £2.10 net

Chapman & Hall
11, New Fetter Lane, London EC4A 3DF

The Chanak crisis and after

W. N. MEDICOTT, DOUGLAS DAKIN and M. E. LAMBERT (Editors):
Documents on British Foreign Policy 1919-1939

First Series: Volume XVIII
1064pp. HMSO. £11.75.

Collections of diplomatic documents seldom have much dramatic glamour, but the latest instalment of *Documents on British Foreign Policy 1919-1939* between the two world wars is an exception. It covers relations with Greece and Turkey from September 3, 1922, to July 24, 1923: in other words from the Chanak crisis to the signature of the Treaty of Lausanne. Only one other episode in peacetime during the present century has had such a cataclysmic effect on British history as the Chanak crisis and that too took place in the Near East—the Suez Canal in 1956. There were other parallels between the two occasions: for example, the misunderstanding and merriment between the British and French and the marked reluctance of the British Dominions or Commonwealth to become involved. But the earlier episode had even wider repercussions. Not only did it end the career of a British prime minister: it also precipitated the downfall of the Greek and Turkish monarchies and it was incidentally accompanied by the emergence of the Fascist dictatorship in Italy.

The *Documents* chart the unhappy story in the most circumstantial detail. The central figure is of course Lord Curzon: dignified but arrogant, brilliant but pedantic, far-sighted but petulant, admirable but unlovable. His contempt for lesser mortals is unmissable. Poincaré was the worst: at one point, "Lord Curzon, explaining that he could not tolerate the repeated and unfounded charges against himself and his country that M. Poincaré had thought fit to make, asked leave to suspend the sitting and take time to consider his action". In other words, he walked out in a huff; and it was not the only time. The Italians were, if possible, more irritating and undependable than the French; but they could be treated as a joke until Mussolini arrived on the scene, to throw his weight about and pretend to an understanding of matters that were beyond him. The Turks were barbarians and the Greeks little better, except for Ven-

zelos. The latter had the inestimable advantage of having the late Harold Nicolson assigned to him as intermediary with Curzon, and that assured him a more than fair hearing. But even Nicolson could not conceal the callous irresponsibility with which Venizelos allowed his adherents in Athens to execute six ministers and generals, whom he could have saved by lifting his little finger.

The story thus has a setting which can only be described, in trite phraseology, as "a Greek tragedy." It begins on September 3, "with the Greek request, to the British government (which was concealed from the French government) to intercede with the Turks for an armistice in Asia Minor. It came too late to save Smyrna, though the Turkish army only arrived there six days later. One of the striking differences between such a crisis fifty years ago and today is the time-lag between events. Immediately on their arrival on September 9 the Turks began looting and burning Smyrna and systematically murdering the Greeks and Armenians; but it was not until September 16 that the news reached the Foreign Office, and even then Curzon could still write about alleged Turkish atrocities, if confirmed . . . Today they would have been instantaneously confirmed by the television cameras. Whether a modern system of communications could have averted the tragedy of Smyrna is debatable. On the contrary, it might well have made the crisis at Chanak even worse, for the man on the spot, General Sir Charles Harington, was a good deal cooler than his masters in London. One of his advantages was that the orders he received were almost always a day or two out of date, so that he could safely rely on his own considerable discretion.

The outlines of the story are familiar. The documents add substantially to the detail without altering the general picture of Turkish truculence, Greek desperation, French duplicity, Italian opportunism. It is more difficult to characterize the detail is so abundant. Yet curiously much is missing, which can only be filled in from other sources. The roles of Lloyd George and Churchill in the affair are well known until scarcely commendable:

but neither of them makes more than a fleeting appearance in this volume. Lloyd George sends a message of approval to Curzon for standing up to Poincaré; Poincaré refers once to Churchill as the "civilian" who misled the Allies into the Dardanelles campaign, giving that as a reason for not letting France be misled again; and that is about all. There is no more than an indirect allusion to the fall of Lloyd George's government. Curzon told his Ambassador in Paris on October 23 (four days after the resignation) that the "new government is not yet formed". Mussolini's seizure of power on October 31 gains more attention in the documents than the British General Election on November 15. This is only natural, the Foreign Office being what it is; but it underlines yet again the impossibility of writing history from diplomatic documents alone.

The Foreign Office came into its own, however, in the aftermath of the Chanak crisis. Nearly three-quarters of this huge volume is concerned with the negotiation of the Treaty of Lausanne. There were, of course, frequent and alarming noises off to distract the negotiators on the Swiss lakeside. For one thing, it was sometimes difficult for them to identify the Greek and Turkish governments with which they were negotiating. The Greeks still had a king, though a new and inexperienced one; behind him was a shadowy cabinet; and behind them was a revolutionary council of republican colonels, who nevertheless insisted that "the Revolution had placed his Majesty on the throne and intended that he should remain there". (They threw him out exactly a year later.) Their chief negotiator was Venizelos, who held no office and declared that he would "never again enter the political arena in Greece". (He was in fact to become prime minister again for four years.) On the other hand, the Turks had two distinct governments, one led by Mustafa Kemal and one appointed by the Sultan. Fortunately the Sultan abdicated and stepped away from Constantinople on a British warship before it was too late. Even so it was only by the narrowest margin that the conference at Lausanne succeeded. Renewed war between the Greeks and Turks was always

imminent, for the Greeks in Thrace were far from healed and could probably have taken Constantinople if the French and British had let them. At one point Curzon withdrew from Lausanne altogether; the conference was adjourned and it was seriously doubted whether it was worth re-convening.

How success was eventually achieved is charted in almost tedious detail by the documents. Undoubtedly Curzon deserved the greatest credit for his patience and skill. Some historians have regarded the Eastern question as finally resolved by the Treaty of Lausanne. Even if that shows an exaggerated optimism, it was certainly a monument of statecraft and proved the most durable of all the peace treaties following the First World War. In a long appendix, it is possible to trace closely the process of drafting and amendment which produced the final result. Curzon studied every word and phrase, and left his mark on every clause. Familiar though the treaty is, it is still interesting to note some of its idiosyncrasies. One of them is that it invokes the term "race" as a criterion of discrimination. Perhaps no treaty before and few since have done so. It is also worth recalling that the article on Cyprus declares that Turkey (but not Greece) recognized the annexation of the island by Britain.

A further article was added on Turkish insistence (which the Foreign Office at first resisted but later accepted, apparently on the advice of the Colonial Office), providing that Turkish Cypriots could opt for British rather than British nationality; but in that case they must emigrate to Turkey within twelve months. For some years afterwards the Turkish Government actively urged them to do so. These facts give a rather ironic sidelight on the Turkish claim a generation later that, if the British Government contemplated ceding sovereignty over Cyprus, it could only be in Turkey.

Many other intriguing by-ways and dead-ends can be followed in the vast documentation of the Treaty of Lausanne, though none of it compares for drama with the first chapter on the Chanak crisis. The editing is, as always, impeccable, and the preface is a model of succinct scholarship.

More than custom

It is difficult to review a book which contains page after page of factual detail. It is certainly a valuable contribution to the social sciences, and lawyers and historians will probably find it most useful in reading it.

What we need to know

more difficult than the direct. Too much is known of the initial conditions and the constraints in permitting an aesthetically satisfying solution. Yet there is at the same time a awareness of our woeful ignorance of the nature and intensity of the determinants of the problem, and still worse of their interactions. Hence, when practised well "futurology" is more demanding and hazardous than straight utopian thinking.

stability of a community. But there he spoils this apparent admission of the existence of matters which are purely of the spirit in his very next sentence:

There is a case for saying that creation of new aesthetic forms, including those of worship, has hitherto been fundamentally productive of all forms of human activity. Whoever creates new artistic conventions has found a new basis for interchange between grosser brut matters that were inconmunicable before.

It is in this kind of substantial nihilism that Professor Young's book is so unique and important. By suggesting

Perhaps Professor Young will now try to distill the best of the wit and the wisdom from *An Introduction to the Study of Man*, bottling it in a smaller and more attractive container.

The post-industrial man

The achievement of "the mature society" is basically the task of creating mature individuals. These in turn have (for Professor Gabor) the qualities of someone who first absorbed the old Continental bourgeois-intellectual culture, was then toughened up in the English public school style, and finally somewhere developed a sense of playfulness. Such men are, unfortunately, a minority, and are likely to remain so for

Some critics will find Professor Gabarron an inconsistent mixture of generally reactionary tendencies: an elitist in social philosophy, an opponent of material progress, and an admirer of drop-out communes. But for those who doubt whether the promise of civilization is adequately achieved by enabling Everyman to fly to Majorca for his fish and chips, Professor Gabarron offers insights and aphorisms worth husing.

Few great Victorian thinkers caused more bafflement among their contemporaries than Frederick Denison Maurice. Theologian, educationist, Christian Socialist. For some forty years, spanning the middle decades of the nineteenth century, he challenged its religious and social complacencies in book after book and sermon after sermon. His brother-in-law, Archdeacon Hare, once his tutor at Cambridge, considered him the greatest mind since Plato.

Benjamin Jowett thought him misty and confused and none of his writings worth reading. "But he was a great man and a disinterested nature, and he always stood by anyone who appeared to be oppressed." R. W. Church, an Oxonian of a different school, commented: "There is something in Maurice and his master Coleridge, which awakens thought in me more than any other writings almost: with all their imputed mysticism they seem to me to say plain things as often as most people." John Stuart Mill considered him decidedly superior to Coleridge in purely intellectual power but thought that there was more intellectual power wasted in Maurice than in any other of his contemporaries. James Martineau, perhaps the most distinguished Unitarian of the period, came finally to say of him that "for consistency and completeness of thought and precision in the use of language I would be difficult to find his superior among living theologians." A hint of contradiction of Leslie Stephen's view. "For Stephen," says his biographer, Lord Annan,

Maurice was anaphema. . . . He portrayed him as intricate, fuddle, bewildering, a "melancholy instance of the way in which a fine intellect may run to waste in the fruitless endeavour to force new moulds. . . . Stephen even went so far as to break his own rule of obtaining biographers sympathetic to their subject in the DNB and himself wrote Maurice's life—which C. B. Raven rightly condemns. Why was he so incensed?

Annan's short answer is that "it was the epistemological tangle, the perversion by Maurice of the meaning of meaning, which appalled Stephen". Where does the truth lie and, if it can be found, what value has it for us in the last decade of the twentieth century?

Interest in Maurice has never died out, partly because his unique contribution to adult education in the Working Men's College has grown from strength to strength, and despite changing conditions has never lost the character Maurice imparted to it; partly because the moral influence of Christian Socialism has had a wider and longer-reaching effect than its small-scale practical achievement warranted, and for this Maurice, Kingsley and particularly for pioneering the approach which made it feasible for English socialists to avoid the anti-clericalism of the Continent; finally because, at intervals since his day, theologians have found themselves fascinated by the power of Maurice's thought and have sought to clarify it.

There is now an opportunity in the light of three books marking the centenary of his death. The most important of these is the reprint of the big two-volume *Life* by Maurice's elder son, which is based almost entirely on his correspondence: some hundreds of letters dealing with the deep problems which were perpetually occupying his mind (Maurice was a man without light relief) to correspondents ranging from his immediate family to friends and fellow scholars open ways into his thought, which seems more vivid and spontaneous than in his formal writings and is certainly easier and more rewarding for the non-specialist to follow. One can only be immensely grateful for this reprint, while deploring its disastrously high price, since it depicts Maurice at first hand and not what others have made of him. And though it may be true that what others make of a great man may in the end weigh more in terms of his influence, yet it one wants to know

A drawing of F. D. Maurice by Samuel Laurence—reproduced from Elaine Kuyke's *A History of Queen's College, London 1848-1972* (to be published by Chatto and Windus on June 29) by permission of Queen's College.

The search for a Christian society

FREDERICK MAURICE (Editor):
The Life of Frederick Denison Maurice
Volume 1, 552pp
Volume 11, 712pp.
Gregg International. £16 the set.

OLIVE J. BROSE:
Frederick Denison Maurice
308pp. Athens, Ohio: Ohio University Press. \$12.50.
FRANK MAULDIN MCCLAIN:
Maurice: Man and Moralist
206pp. SPCK. £2.80.

him one must place oneself as nearly as possible in his orbit—and this is exactly what *Frederick Maurice's* book enables one to do. Olive Brose, of course, is one of his others, but to say this is in no way to minimize the value of her book, for it is excellent. Her rich background knowledge provides a setting which is essential but too often deficient among contemporary scholars, and her analysis of Maurice's tangled thought shows, with many important quotations from his writings, that however unsystematic he is—not surprisingly, since he loathed systems—his ideas do in fact radiate from an all-governing centre. One feels little hesitation in taking Dr Brose as a guide.

It is another matter with Frank Mauldin McClain. His theme is the derivation by Maurice of his ethical and theological beliefs from his personal relationships. This is an interesting new departure. Books on Maurice have tended to deal with him almost exclusively from an intellectual point of view. And an analysis such as Dr McClain offers can be illuminating, and certainly has its fascination. Personal relationships may well affect the processes of a man's thought, and though it may be true that what others make of a great man may in the end weigh more in terms of his influence, yet it one wants to know

thinking is based on the prime importance of persons. But in the last resort psychological analysis is irrelevant and distracting; the thought must be criticized on its merits alone. Incidentally Dr McClain has some strange lapses which cannot be overlooked. Why in his genealogy of the Maurice family omit several of Maurice's great-grandchildren? And what can one make of the comment on Maurice's wife that his "relationship with Anne Barton was fortuitous" when he goes on to say that "the ease of their correspondence, the regular interchange of thoughts . . . provided Maurice with a ready, loyal, supportive yet critical audience."

There are a number of other mistakes assignable to careless revision or proof-reading. All told, however, this is a stimulating book with a first-class bibliography of Maurice's own writings, very full notes, but an index almost useless for working purposes.

Maurice was born in 1805, fifth in a family of ten, all girls but for one other boy who died as a small child. His father, Michael, was a Unitarian preacher, more tolerant than his convictions strong enough to forgo the inheritance of an estate in Essex for the sake of his Non-Conformity. He kept a school, and until Frederick went up to Cambridge in 1823

he was educated at home. Dr McClain emphasizes the psychological stresses of his strange childhood and adolescence. He could hardly escape the "monstrous regimental of women", some of them ethnically neurotic. He developed a compulsive need to care for sick women, and as a young man nursed his sister Emma, who died in 1831, and later his sister Priscilla, who kept house for him until his marriage in 1837 and again after the death of his wife. In 1845, Annie was the sister-in-law of Maurice's close Cambridge friend John Sterling, who along with his wife was a prey to "consumption", and it looks as if Annie had contracted the disease through nursing the Sterlings. Her death was a tragedy for Maurice, if only because she generated light and humour in contrast to his other close feminine contacts. Her remark, "Mr Carlyle has been here talking for four hours in praise of silence," shows her quality. For comparison, we have "Sickness, a vocation," discussed by Priscilla in one of her six books on sickness and death. Finally, in 1849, Maurice married Georgina Hare, another confirmed invalid, described by her somewhat malicious half-nephew Augustus as a "sickly, . . . documented, petulant woman".

All in all, as child and adolescent, Maurice was at the opposite pole from Walter Bagehot's "common English boy, the small, apple-eating animal whom we know". And the hot-house intensity of his life was exacerbated by the religious rifts which appear in the family. One by one, the women went over to the Church of England, leaving its Evangelical, Calvinistic wing. They refused to attend the services held by the master of the house, and generally the tension became so great that they conducted their religious discussions by correspondence. Poor Mr. Maurice took nearly a year before she could bring herself to present to her husband the paper setting out why she could not accept his ministrations. Wounded especially by this artificial resort to letter-writing, Michael Maurice finally ordered that the younger children, including Frederick, must attend his chapel until they were old enough to doing so. These discussions might understandably have produced a backlash of cynical atheism in a sensitive boy; instead they bore fruit in Maurice's lifelong of sectarian fighting and his craving for unity in Christ, which would eventually become one of his great constructive themes.

Shy, introspective, and unused to society as he was when he went up to Cambridge, he rapidly became one of the most forceful members of the famous Apostles Club. Interestingly enough, he felt in later years that the intellectual give-and-take with his undergraduate peers had broadened and deepened his mind more than the teaching of any of his tutors, including Julius Hare. He had read Coleridge before he went to Cambridge, but it must have been in discussions at Cambridge that Coleridge's writings took hold of his mind and planted these ideas of the nature of the Church and the relations of Church and State which would grow in Maurice's thought, tying in with his ideal of unity until he had made them completely and almost idiosyncratically his own.

He got a First in Civil Law, but came down without taking his degree since he would not subscribe the Thirty-Nine Articles. He then read law in London but became interested in literary journalism, and in 1828 was appointed editor of *The Athlete*, and he and some friends having bought the new journal from its founder, Dr. Brinsley Greville R. C. Trench, exulting that Maurice and that gallant band of Platonist Wordsworthians—Coleridge and anti-Utilitarians still kept with undivided sway at the helm, and that the journal is "entirely written by Apostles". At the same time, Maurice began a novel, *Emancipation*, one of that curious class of Victorian fiction like Newman's *Loss and Gain* or Froude's *Notions of Faith*, written for the sole purpose of expressing the author's own spiritual searchings. For Maurice was undergoing a process of "conversion",

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71st Year 23 JUNE 1972 No. 3,669

Viewpoint

BY W. J. WEATHERBY

ELECTION YEAR in the United States resembles one of the great series of Dickens. Our television sets have become our *Household Words*. From the first primary in March, through the summer conventions, all the way to election day in November, we switch on television day after day witnessing drama, even melodrama, and we are seldom disappointed.

It is still only June and already we have witnessed the rise and fall of three would-be presidents (two can no longer use the word "heroes" as readily as Dickens did)—Lindsay, Muskie, and Jackson. The scene of Muskie weeping in the snow was truly Dickensian. *A Christmas Carol* came to mind, though much of the public response was more like second-rate hair-on-the-chest Hemingway, and when the news that Wallace had been shot began to circulate, I was reminded of Victorian readers pining on the news that Stierfort was dead. Or Bill Sikes.

Even an eternal optimist like Hubert Humphrey is surely a character straight out of *The Pickwick Papers* now seems to speak with an oncharismatic fatalism, like someone in *Blues House*, say, who feels that he has little control over the drama he is in. Gone for good apparently is the old sense of security in public life that Humphrey's generation used to feel, when you were fairly sure what might happen and presidential contenders usually died in bed. If you talk in the old politician's such nostalgic lingo today—they make the old way of public life seem almost like a ritual that had already been rehearsed, with all the safe logic usually found only in hindsight. [And from this side, British political life still has this safe appearance, with the exception of course of anything to do with Northern Ireland.]

Now the United States of the present seems like another country. The candidates are as insecure as characters in good novels, anything could happen, life is suspense all the way, and somewhere you feel there must be an author pulling the strings. What will he—some will insist it's He—decide on next to excite his audience out of its spiritual lethargy? Will anyone else get shot? Part of us dreads the idea, and part of us, I'm afraid, simply yearns for more excitement. We look to the last Kennedy, half dreading he might yet get drafted by the Democrats, half hoping he will. Just as the politicians have been stripped of their old-fashioned sense of security and the teams of Secret Service men given to each candidate are no substitute, so we are beginning to lose our sense of separation between reality and imagination, what is fact and what is fiction.

Reality on television, mixed in with soap operas, late-night movies, the fantasy life of commercials, becomes a Big Show, Wallace shot before our eyes becomes a Dramatic Event, a Highlight of the election year. No wonder people passing on the news seemed schizophrenic—split between the way they thought they should respond (No Man is an Island and an immortal sense of excitement, of glee, at the latest twist in the serial. It was high level voyeurism shocking

the right proportion. It was Warren's novel that finally brought the event up close. Nowadays, if a public figure doesn't die on television, he seems not to have died properly: it's like dying in the middle instead of up there on stage. And perhaps in the end, it's just as well, if there are to be no novels to bring it really up close. How many times has Bobby Kennedy died for us on television, on radio, in newspapers, in magazines, and in countless books of memoirs? Yet I for one, who have seen, heard, and read most of it, have no clear picture of Kennedy beyond the public front. When he talked to a favoured writer about Camus, was this part of the real man or a part of the image being prepared for our television set? We can't know until some writer tells us in a form that will take the truth, the whole truth.

Various reasons are given for reality's failure to inspire comparable literature. Some publishers argue it's simply the law of supply and demand: Americans don't read political novels—or at least good ones—so Americans don't write them. This seems too easy. *All the King's Men* was a bestseller, and twenty-five years later is still in print. One or two reviewers have suggested the downgrading of fiction has made writers do their political work in non-fiction. This again seems too easy. The liberal laws prevent you from telling the whole story even if you know it. You need imaginative freedom to describe folly, to explain, and finally to relate the isolated event to the individual life, to the rest of us in society. The reason I find more convincing is that writers do not know enough about the detail of political life, at least on the higher levels of power, to write about it with enough confidence in their knowledge and understanding. I think it's true that of all the major American writers today, only Muller has had any experience of running for office, and then only for mayor of a city, and as an outsider candidate more in touch with the voters than the party machine boys in the smoke-filled back rooms. Muller has tried to write about the paranoid atmosphere of contemporary American politics in a couple of novels and films, but when it comes to the detailed picture, he goes back to non-fiction, the interview, the description, the reflective essay, and when the former mayoral candidate goes to the White House level, he's not beyond being impressed by the sheer power of it all and the charm of one of our television serial stars . . . or at least he wasn't in the days of John Kennedy, perhaps the greatest television star of them all.

What we tend to get then are novels like *Advice and Consent* by a former reporter in Congress. It goes up to Senate and White House level, it has a convincing surface, but once you get below it, all that's left are a conventional plot and cardboard characters, presumably to fill in the great areas of ignorance. The viewpoint is safe and conservative (no wonder it was a best seller with hook-buying Middle America), but it didn't check with the picture we got even from our television serial, where political life was so much wilder and more aggressive. What we need are writers to take what is happening out of the realm of the Big Show and make reality seem real again, to educate us rather than just exciting us as that in the end—on voting day—we don't fall back on our fears and follow all the safe brainwashing lines. Law and Order and the rest of the commercials used in the selling of the presidency.

The belting at present is on Nixon versus McGovern, which is supposed to be the way Nixon wants it, because he believes (according to our television serial anyway) that McGovern can be made in seem inn far out—almost a socialist for God's sake—to Middle America. McGovern, however, is much more of a pragmatist and much less of a hero (that dirty Dickensian word that he is given credit for, and Nixon may find it much more difficult than he supposes to trap McGovern in an unpopular radical corner. (Humphrey is trying it at present in the remaining primaries, and it doesn't seem to be working as McGovern plays after him methodically answering every charge.) There

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Brigid Brophy, *The Listener* (reviewing Cicero by D. R. Shackleton Bailey)

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Duckworth books

BY JOHN G. TAYLOR

These points of view are based on a close study of the careers and family backgrounds of imperial appointees during the period. Although the more general observations at the beginning and end of the book are what will chiefly interest the non-specialist reader, the meat of the sandwich consists of detailed prosopographical research, hacked up by statistical tables and lists. Not surprisingly, the book has taken some time to go through the press. Otherwise, no doubt, F. W. Walbank's *Decline of the Roman Empire in the West* (1946) would have been replaced by *The Achaemenid Revolution* (1969).

ANY FRUITFUL analysis of perception must start from sense experience; physics, physiology and psychology are built up from what we have abstracted from sense experience. Actual sense experience can never be deduced by any science, for all science presupposes and stands upon our own sense experience.

Phenomenology reveals our basic experience of the world by means of reflective description and analysis. This is not description and analysis of objects in the world. Thus a description of a brain could not be a description of experience; but is rather a description of what seeing and touching a brain, including its objectness, its independence and apartness from us, would be. In other words, phenomenology does not merely describe an object but illuminates the way in which it reveals itself to one individual.

Reflection is commonplace and indispensable. I can be absorbed in a task and all my attention can be devoted to what I am doing. I am seeing, hearing, touching what is before me; but then it is the object and the task, and not the perceiving, that occupies me. But at any moment I can make my seeing, hearing and touching explicit and then I am reflecting in the phenomenological sense. It is not the perceiving alone that I am, or ever could be, aware of in reflection, for there cannot be perceiving without something being perceived. What I am reflectively aware of is my perceiving something.

Phenomenology therefore moves in the medium of a consciousness that reflectively distinguishes between itself, for which an object is given, and the "being-in-itself" of the object. This movement from the natural experience of the object to the reflective knowledge that this being-in-itself exists for consciousness as an object of self via its object.

This dimension of consciousness gives us a footing outside science from which we can ascertain methodically science's interests in constituting knowledge. This experience of self-reflection dissolves the objectivist self-misunderstanding of the sciences which suppresses the contribution of the self-world relationship to the preformed objects of possible knowledge.

Science regards reality as the totality of what can be experienced with a view to possible technical control. This "reality" that is objectified is therefore a specifically restricted mode of experience. Scientific language about reality is formed under the same conditions. Its theoretical sentences belong either to a formalized or at least a formalizable language. This pure language of science is as much the result of abstraction from the spontaneously

Phenomenology, the senses and the brain

BY J. M. HEATON

evolved pre-given material of ordinary language as is objectified reality from the spontaneously evolved pre-given material of experience. Both the restricted language and the restricted experience are defined as being results of operations, whether with signs or moving bodies.

The primary role of operations in science can be seen to be confirmed in the procedure of connecting scientific theory with observations. Systematic observation takes the form of an experimental underpinning that makes it possible to register the results of operations of measurement. These permit the reversible univocal correlation of operationally determined events and systematically connected signs.

I have said that phenomenological reflection tries to illuminate the way in which objects reveal themselves to us. So there can be no method peculiar to it, as any method simply reflects what is and describes it. One cannot oneself to describe and opens oneself entirely to it without resisting it. One does not reflect on what is but lets what is pass into one's discourse describing it.

Science, on the other hand, must have a method and a language, which are specific to it, or at least systematically applied by scientists. For science opposes itself to what is, it puts nature "on the neck" to make it speak; so it deforms nature by opposing its own means of action and ways of thought. For science is born from the desire to know rather than to be in the world; its final end is technical control.

Take the brain, for example. When they seek to explain all perceptual experiences in scientific language, scientists often forget that the brain is a product of the human senses. For it

is basic that we have to learn to perceive; how we learn and what we learn depends among other things on our history, language, and socio-economic circumstances. A brain as seen by a butcher is very different but just as "true" as a brain seen by the neuro-anatomist. Aristotle saw the brain as cool and silent in contrast to the heart, which was warm and active and the centre of life. We do not today see the brain and heart as being particularly cool or hot. The heart is of comparatively little interest to us—we see it as just a pump which will soon be readily replaced by a mechanical pump. The brain, on the other hand, is a hive of activity full of mysteries.

As techniques of observation and methods of recording change, a new perceptual grid and an almost new perceptual vocabulary arise. The mutual relationship between objects in the perceptual field, the linguistic code, the use of instruments to examine objects, and the information that is created by the use of language itself—all change in different historical periods in ways that are only beginning to be explored. The brain as a postulated entity is as much a myth as the gods of Homer.

The blinkered language of science

The scientist's concern with technical control and changing things in the world leads him to overlook crucial phenomena or to confuse them. This is the experience of length in each one of us that inspires us to measure length. It is our experience of the depth of space which induces our mathematical explanation of distance. Science with its measures does not tell us anything about these phenomena.

There would be no trouble if the scientist described his language only the functions it performs in the process of his observation and control of the physical world. But he is generally presumptuous, and to him his language represents the whole unambiguous truth of nature. But experience speaks otherwise. In every sound there is silence, in every movement there is repose.

Science sees shapes as nothing but idealized synthetic generalizations of the visible, serving exclusively as a measure. They are confined within strict mathematical laws and are defined by exact characteristics which are valid for all. These generalizations are true and valid in as much as they attain the purpose of quantitative measurement of the object of observation.

But a line need not be merely a distance between two points, it can be a direction, a path in which we follow the movement of the line. That movement need not be the actual movement of the line in space. It is an inward movement of our consciousness in its tracing of the visual experience of the line. For our consciousness is in and of time.

Similarly, shapes, forms and colours can be charming, tempting, entrancing, alluring, they can move us and have power over us. They are able to bring order or confusion into our lives. They possess a constructive power or a destructive charge. They need not be experienced as being apart from us and only able to be altered by some instrumental act.

For we are meshed into the visible world. Vision and our manner of looking belong together.

The emphasis of science upon the control of nature has led scientists and those philosophers who are merely apologists for science to emphasize the role of certainty and illusion in perception and to build theories trying to explain perception and illusion with the same presuppositions. For if you are concerned with control, you must emphasize certainty and try to overcome all doubt. But as you can never be absolutely certain about anything, scepticism about the "reality" of things in the world has prevailed, and the role of sureness in perception has been overlooked.

For example, can I be certain that there is a brain inside my skull? I have looked inside other people's skulls and found brains; I have never read of anyone having a sawdust in his head instead of a brain and I know that a vast amount of knowledge about behaviour depends upon people possessing brains. I suppose it would be rather arrogant of me to think that I am so exceptional that I have sawdust instead of a brain. But all the same would it really alter my life all that much if I persuaded a neurosurgeon to open my skull while I watched through a mirror and so, when he opened my skull, out came sawdust? I would now know that I had only sawdust for a brain and this might make me nervous—after all I would be an object of curiosity to many and no doubt my friends would tease me; but it would not deprive my life of meaning.

But supposing I find myself being charmed and then allured by the sight, touch and voice of a vampirish woman. Can I be certain of it? It would be no good trying to check up by observing myself or her and then making hypotheses and generalizations, for it would be likely that the more I observed her or myself the more deceived I would be. Similarly no operation or technique performed by someone else could ever make me certain in the way that they can be used to check up on what is inside my skull. Only if I felt myself being deceived by her, if she altered my life in a sinisterly alluring way, could I be sure of it and act accordingly. No one could use techniques which told how I felt more accurately than I myself could feel how I felt. In fact such an enterprise would be pure nonsense and would deprive my life of meaning if I believed it. But this is precisely what science attempts to do when it claims priority over everyday experiencing and tells us that it is more certain about what we sense than the sureness of our experience.

The scientist observes the world in order to control it, thus divorcing himself from it, looking at it as an outsider, and reducing it to a series of facts that have to be explained in a language that merely mirrors the factual. If I fail to reflect on this scientist's misunderstanding of the nature of the body. For our body is both an object among objects—we can look, touch, smell and listen to our own bodies as well as to other bodies; and at the same time our body is that which sees, touches, smells and listens, for we have to be embodied for these activities. Our body, then, is neither an object purely observed from without nor a pure subject transparent to itself. It is that



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First, a play-group

ROGER MITTON and ELIZABETH MORRISON
A Community Project in Notting Dale
185pp. Allen Lane The Penguin Press. £3.

It is fashionable to pay lip-service to the potential of community development as a means of helping people—usually in "deprived areas"—to help themselves. Extreme adherents apparently believe that effective community development could lead to so general and widespread an enthusiasm for local participation as to transform the conditions of life for the underprivileged. Others make more modest claims but still have faith in it.

There is a limited but growing body of literature but few have succeeded in getting over, particularly to those outside social work, what community development really amounts to in practical terms. In telling the story of one small community-development project, this book draws on the reports and tape-recorded recollections not only of the workers and committees who took part in it but also of the ordinary local people who were involved and at whom the project was aimed. The result is a vivid, often amusing and deeply moving account which cannot fail to be of interest to anyone concerned about the problems of the urban poor.

The project was sparked off by a small group of middle-class people in Kensington who wanted to do something useful to lessen the social ills of those living in the less salubrious parts of their district. With characteristic competence they approached trusts for money and set up in motion what was to become known as the North Kensington Family Study. Most of *A Community Project in Notting Dale* is about the rise and fall of a particular play group because several local mothers felt to be needed and would therefore be willing to support. The play groups were seen not just as useful in themselves but as a "springboard": the starting-point for a local involvement that could extend into other spheres. In other words, helping to promote the play groups was a method of "involving the local people and using local resources to solve North Kensington's problems". By the time the five-year project came to an end there was little evidence that this ambitious aim had been achieved.

Inevitably, many mistakes were made and many misunderstandings arose—between workers and committees, committees and local people, local people and workers, and between local people and workers.

About that urgency Mr Wynne-Tyson is clearly in no doubt at all. The diagnosis, or indictment, is on familiar lines: population crisis, physical and mental pollution, the blind arrogance of technology, the gross insensitivity towards other

local people and workers, and between local people themselves. Much of this resulted from the differing expectations and attitudes of those involved, as emerges vividly in the quotations. Such differences, the stuff of most human relationships, are unlikely to have been a serious setback to the end result of the project. Indeed, there is plenty of evidence to suggest that all parties learnt a great deal from them.

More serious were the effects of intervention at crucial stages by two key people. First, the late Ily Booker, the community development worker. It seems probable that, aware that she was running out of time, she tried to push the women most keenly and actively involved to stand down—hoping that they would take their interest and energies elsewhere, and thereby encourage others (who in the event proved unwilling or unable) to take over the original group. The second crucial and disastrous intervention was the advice of an "expert" on community development. This led to a fundamental change in policy which in turn crystallized into a change of purpose.

The purpose of the project is to help the community to become aware of and to recognize need, to think, discuss, decide, plan, organize and act. It is to do this rather than provide any social welfare provisions.

This led, say the authors point out, to a new policy of pushing the play-group mothers into responsibilities

Doom service

ION WYNNE-TYSON
The Civilised Alternative: A Pattern for Protest
224pp. Arundel: Centaur. £1.50.

One day soon—preferably tomorrow, or even later today if the alarm bells really mean what they say—the preaching will have to stop and emergency action start. If we leave it much longer than that, the alternative to disaster would presumably be less civilized than Ion Wynne-Tyson envisages. Yet is there time, assuming the urgency of our situation to be what the doomsayers say it is, for his "pattern for protest" to rescue us?

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Out of wedlock

BILL MORTLOCK
The Inside of Divorce
240pp. Constable. £2.75.

The first part of *The Inside of Divorce* is an excellent exposition of a divorce solicitor's practice, based on Bill Mortlock's deep practical psychiatric understanding.

How frustrating it is for a modern, humane man to have to operate with blunt legal instruments on the intimate lives of innocent people at a critical time of their lives. Mr Mortlock shows the need to break away from formalized divorce and aggressive attitudes. The "silent" branch of the profession, knowing the suffering of the parties and their dread of the public parade of their shattered marriage, has to select the facts to bring a champion for this show of battle before a judge, who now really has nothing to judge except the rituals.

The "welfare" of a child is covered by the recent requirements of a statutory satisfactory certificate about custody, care, education and financial provision put forward by the petitioner, "who has every incentive to tell the Judge that the

child is happy and doing well in school". The Judges do their best, but are asked to undertake a function for which, not only have they no training, but which is also at odds with the whole of their professional experience.

Our present system still has accusatorial techniques. Mr Mortlock shows the rapid change of legal view since collusion, connivance and other obstacles to the law serving the changing moral requirements of people were abolished. And what happened to that sinister figure, the Queen's Proctor, who was awarded costs if he successfully intervened?

It must be said that Mr Mortlock's writing is in the difficult style of the "silent" branch of the profession, and most pages are crammed with references to a bibliography in the "Schedule" of the book; how much easier it would have been if they had appeared at the foot of each page.

It comes as a great relief to the reader when, at the end of the book, Mr Mortlock reveals his own feelings towards the Bar as containing many "extroverted verbalisers"—"the advocate's essentially cannibalistic

they had not asked for. It was not only the local women who were unhappy over this: some of the committee members were, too. As one put it: "It can be cruel to say to people, 'This is what you need and want. OK. Go and get it', when they are not in a position to do so." In a matter of months the local mothers had lost not only their own impetus but the practical support provided by the committee and, worst of all, Ily Booker herself. She died after a long battle against illness; a grief to the small group to whom she had become familiar, but also a tragic loss for community development in Britain.

"The community development worker", she once told her committee, has so more power than the gardener to create results. He sows, tends, waters, feeds and prunes his plants. He is anxious about the hazards and longs for the results. But the flower will bloom in its own way in its own time.

One lesson to be learnt from the Notting Dale project is that in working on such neglected ground results must be even more uncertain and require more patience than Ily Booker's comment suggests. The achievement of this book is that in its account of a project which at best apparently achieved very little such lessons are abundant. It will lead to much discussion and provides the opportunity to examine and learn from what took place in a few dingy streets in Notting Dale.

branches of creation. He sounds his alarm with a controlled passion strong enough to get us to emergency stations without our feet touching the deck, and then proposes—instead of throwing the engines into reverse—a rewarding though somewhat leisurely new route. We must sort ourselves out, develop balance, cultivate the eclectic attitude. The need is to launch ourselves on the evolutionary process, accepting that we know nothing of our destiny yet realizing that "the important thing is to be on the right road". We must accept the responsibilities of free choice, while rejecting the "sleazy substitute" of the permissive society and shunning the "whizz-kids of the New Mood". In short, we must study to become creatures of heart and mind and discrimination instead of desperation, violence and greed. Admirable. But what—so Mr Wynne-Tyson's readers are all too likely to demand—what of the short-term measures?

Two barristers, in a book published in 1965, said that it seemed "impossible that divorce by consent will ever become possible in this country". Consent divorce became law in 1971 (after two years' separation, and without consent after five years). The few defended cases today are generally caused by fights about maintenance, children, or vindictiveness. Most respondents do nothing upon receipt of the papers except secretly rejoice. How wise Mr Mortlock is in suggesting, as do a few other enlightened lawyers, that there is now no need for a court trial at all. A Registrar should note the fact that the marriage is ended. Divorce should be recorded after a "cooling off period". If necessary proper arrangements can be made through a tribunal (trained in psychology) for the children, the wife (with a disclaimer of the possibility of guiltful employment) and for the house. Solicitors would deal with all divorce and should have a specialized training in humane affairs.

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Richard Hyman's study of how the engineering disputes procedure was applied in Coventry shows that the procedure was rarely as bad as its critics claimed, and that it played an important and valuable part in resolving numerous disputes. The negotiating machine frequently yielded some advance for union members and this helps to explain why the agreement remained in existence for so long, even though its main terms had been dictated many years earlier in the aftermath of union defeats. When a higher level of employment shifted the balance towards the unions, the agreement was interpreted more liberally by employers than in the lean interwar years. A wide range of issues could now be raised within procedure which would

previously have been regarded as the prerogatives of management. Employers were much less inclined to enforce changes without negotiation, when they knew that a strict insistence on their procedural rights would be met by workers' resistance, and they were more inclined to make concessions in response to union representations through the negotiating machinery.

The neglect of the procedure caused unnecessary delays in settling disputes is shown to be exaggerated. There are three main reasons why this criticism is unfair. First, the representatives of both the employers' associations and the unions are men with crowded diaries; it would therefore be pointless to arrange for short time-limits between each stage of negotiations. Secondly, in some unions issues cannot be referred from one stage of the procedure to the next without a committee decision, and committees with lay members do not meet frequently. Thirdly, both union officials and employers' association officials sometimes find it an advantage to retain an issue for informal discussion with their opposite numbers.

Mr Hyman has a keen eye for the reality of the relationship between employers and unions in the engineering industry. He succeeds in conveying this reality, and also in showing that the substance of this continuing relationship is rather more important than the formal terms of the now defunct negotiating procedure agreement.

Union views

W. E. J. MCCARTHY (Editor):
Trade Unions: Selected Readings
416pp. Penguin, Paperback, 60p.

W. E. J. McCarthy is one of Britain's most distinguished academics in the field of trade unionism, combining analytical ability with practical experience. He was originally engaged in the movement, he has written an authoritative work on the closed shop, he acted as director of research for the Donovan Commission on Trade Unions and Employers' Associations, and he is senior lecturer in industrial relations at Oxford. His imaginative selection of readings provides statements of contrasting views on such matters as trade union objectives, the meaning of industrial democracy, trade union structure and government, factors effecting trade union growth, the economic effects of trade unionism, and the relationship between trade unions and the law.

It should be clear that there are many different objectives sought by trade unionists. Some would define the main objective as being to defend and advance the wages and other interests of workers. Some would argue that such a definition raises at least as many questions as it answers. Should wages be considered in isolation from their effect on prices or employment? To what extent should unions legitimately seek to influence wider industrial and economic policy? Unions cannot seek the full realization even of their narrow occupational interests within the limits of collective bargaining; inevitably they are drawn into other fields—welfare and safety, superannuation, training, redundancy arrangements, and so on.

More recently the trade union movement has been seen as a vital expression of industrial democracy. Workers seek through their unions to influence their working environment. Allan Flanders and Hugh Clegg have discussed the efforts of workers to extend the area of joint regulation in industry and thus to limit the traditional prerogative of management. Professor Clegg, in particular, has likened the trade union movement to an opposition which can never become a government, but which nevertheless profoundly influences the course of industrial affairs. This view is partly in reaction to the guild socialist

As in Coventry

RICHARD HYMAN:
Disputes Procedure in Action
150pp. Heinemann Educational. £1.90.

At the end of 1971 the national negotiating procedure agreement for the engineering industry was brought to an end. The employers and unions were unable to agree about the question of the "status quo".

The unions argued that there ought to be negotiations before any material changes were introduced. The employers accepted the need for negotiations about conditions and agreed practices, but argued that if negotiations had to precede every kind of change this would put a straitjacket on industrial progress. There, for the time being, the argument rests. Richard Hyman's study of how the engineering disputes procedure was applied in Coventry shows that the procedure was rarely as bad as its critics claimed, and that it played an important and valuable part in resolving numerous disputes. The negotiating machine frequently yielded some advance for union members and this helps to explain why the agreement remained in existence for so long, even though its main terms had been dictated many years earlier in the aftermath of union defeats. When a higher level of employment shifted the balance towards the unions, the agreement was interpreted more liberally by employers than in the lean interwar years. A wide range of issues could now be raised within procedure which would

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So what's all the fuss about?

JOHN MADDOX:
The Domsday Syndrome
246pp. Macmillan. £2.95.

Since John Maddox took over the editorship of *Nature*, the editorials, previously a 'cure for any scientist's insomnia', have taken on a swinging style, commenting sharply—if not always consistently—on this and that, intolerant of fools, and, while not illiberal, suspicious and even embarrassed by strong feelings. Dr Maddox's attitude to the environmentalist movement is well known to the scientific community, but with the publication of *The Domsday Syndrome* he enters the public lists as the champion of good sense against the overstating, scoremongering ecologists. Especially selected for impeachment are the scientists among them. More to sorrow than anger, Dr Maddox writes: "The way in which so many professional scientists—Dr Ehrlich, Commomer and Dubos, for example—have lent their names to the assertion that science and technology are automatic 'our colleagues'." He then sets out to remove the white coat of scientific professionalism under which these miscreants have sought to conceal themselves.

It is certainly true that the ecology boom has been bursting out in all directions recently, and may have reached its greatest girth this month in Stockholm, having taken *The Closing Circle*, Zero Population Growth, *Blueprint for Survival*, *Environment*, and many more along its path, to say nothing of pollution correspondents for daily and weekly newspapers and environmental ministers in the government. But what is this bubble that Dr Maddox sets out to prick? While it would be wrong to regard the ecology movement as united, and indeed there are serious doctrinal splits within it, it is agreed on a number of issues—that the earth is finite, fragile, and with limited resources; that these resources are being rapidly consumed by a growing human population which is at the same time filling the environment with its detritus; that earth, air, and water are becoming polluted with plastic and chemical residues, and are

in danger of dying slowly if they do not first die quickly as a result of some unexpected catastrophe. The debate between Dr Ehrlich and Dr Commomer is whether population growth or technology itself are primarily at fault; neither is optimistic about human survival, and within the ecology movement some preach inevitable, chthonic doom, while others maintain that utopian simple-life solutions may yet save mankind.

Dr Maddox attempts to deflate each of these hot-air bubbles in turn. Population growth is rapidly coming under control, and the present figures reflect more people living longer rather than more people breeding faster; built-in biological mechanisms will prevent catastrophe, and Dr Ehrlich's demographic predictions are spurious and misleading. As for pollution, in many ways we are better off than in the past; many rivers are cleaner, smog and sulphur dioxide levels in the air are lower, Lake Erie is neither dead nor dying, but can be cleaned—at a cost.

As more hazards are brought to our attention, they too can be dealt with; lead can be removed from petrol; mercury from waste—also at a cost. The hazards of DDT and cyclanates have been widely exaggerated. And as for the possibility that we may be running out of raw materials, well, we have not done so yet, and it is not likely that we shall soon. Anyhow, when we do run short, the market mechanism, plus a little judicious government intervention, will ensure that substitutes are found.

The assurance with which Dr Maddox contradicts the prophets of doom is magisterial, yet not wholly convincing. To be sure, as he would doubtless put it himself, some of his shots are well aimed; Dr Ehrlich and his population numbers game are 'hit hard', and not before time. The more hysterical pronouncements about overcrowded humans behaving like overworked rats, the greenhouse effect, the melting of the polar icecaps, stripping of the earth's protection against cosmic radiation by supersolar flares, and so forth, are shown up for the nonsense they have always been. But there is just too much blandness here, too ready an

acceptance that the ecologists' expertise is wrong whereas Dr Maddox's authorities are right. He makes just as sweeping generalizations as do the Ehrlichs, Commomers and Dubos, and he just as slender evidence, and if he counsels caution in accepting them, why should we accept instead his "there is a wealth of evidence that..." or "so one pretends that..." with any greater sense of security?

Indeed, there are places where his concern to reassure, to deny the very existence of problems, leans over into absurdity. If oil reserves run low, for instance, just how many orders of magnitude cost-escalation for petrol can the market mechanism absorb? Just how many deaths through mercury or lead poisoning are tolerable? Sometimes, he is just plain wrong—as over DDT, where he plays a disingenuous numbers game of his own, calculating DDT concentrations in humans in "thousandths of an ounce", as if so small a quantity were by definition negligible, yet ignoring the fact that even such tiny amounts of substances accumulated over long periods can be carcinogenic. One of the well-documented consequences of the large-scale use of DDT has been a catastrophic decline in the survival of the young of many bird species, often manifesting itself in the laying of infertile or thin-shelled eggs. "It goes without saying", Dr Maddox tells us in yet another of his characteristic phrases,

that for most of the species which are laying thinner eggs, the effect of the pesticides, whatever it may be on the hatching of young birds, will not usually be followed up by a similar reduction of the number of those who survive to adulthood. This statement, in the absence of supporting evidence, is near to biological poppycock; and, if Dr Maddox took it seriously, he would have indeed let it go without saying. And a similar disingenuousness is repeated throughout the book, with respect to herbicides, mercury, lead, and so on. Nor is the book helped by its untidiness of construction. It is repetitive and disorganized; it is full of inconsistencies and, astonishingly for one who is the editor of the world's most prestigious scientific

journal, it is poorly edited. But the heart of the difficulty is that while the book aims to be an attack on the pessimism of the doomday men and a reassertion of courage and nerve, it reads too much like a quasi-official blindness attempting to pass off optimism as a new world view. Where technologies appear to be on the side of repression they will be rejected in favour of new messages. The message may be misinterpreted. Dr Maddox may be right when he denounces false prophets with their implicit desires for personal vainglory (being a man of eminence within an advanced industrial society which is on his side), he assumes that there are no problems, and so falls to repeat the prophets of doom actually, apologetically. It is because of this lack of imagination that he glantly believes that society can adjust out all the problems. He does not engage with the radical political wing of the ecology movement, which argues that pollution is a consequence of the capitalist order of society rather than technology as a juggernaut; he ignores its existence, preferring to tilt at easier targets.

Hence he cannot offer what the optimist must in counter-doom: the promise of a transformation of society and technology, from oppression to liberation. Dr Maddox, prisoner of the system, doesn't realize that he, too, needs to be liberated.

Globe trotting

The Atlas of the Earth
Edited by Tony Laifus with others.
144pp Text 303pp Atlas and Index.
Mitchell Beazley with George Philip and Son. £13.95.

This is very much more than an atlas. The first 143 pages are up to date, and the last 100 pages are up to date. They are followed by a four-page index. The conventional atlas, comprising maps of the world, occupies 176 pages, there are seven pages of climatic graphs, four more showing the locations of National Parks, and a final index and gazetteer of 112 pages. The whole volume weighs nearly nine pounds.

The standard of printing, by Smeets N. V. Weert of the Netherlands, is superb. The colours are good, and their registration perfect—nowhere does any printing of any colour appear to be even a fraction of a millimetre out of register.

The encyclopaedic section is called "The Good Earth", though its scope is even wider, for it starts with a succinct account of the whole universe—space, our galaxy, the solar system, the moon. Here, as elsewhere, the diagrams are clearly drawn and are accompanied by excellent photographs. For instance, a two-page spread of shots taken from Apollo spacecraft. The wealth of illustrations, which cover in almost all cases the greater part of each page, may give the misleading impression that this is only a picture book. However, the amount of text is substantial, and, for the most part, it is well written, and contains an enormous amount of basic information. This there are some 12,000 words of text on the pages displaying the pictures of the universe, though the letters are divided up in such a way as to avoid giving the impression that this is a book which needs to be read, rather than just looked at. An attempt is made to impart this knowledge almost by stealth.

The other sections in "The Good Earth" are equally informative. Climate and weather are dealt with in such a fashion that weather forecasts will begin to take on some real meaning. The accounts of the structure and geology of this planet are equally illuminating. The substantial section entitled "Life on Earth" describes the origins and evolution of living organisms, from the beginning of geological time to the present day. The ecological sections, describing in considerable detail the main environments, from the Arctic to the tropics, are particularly well produced. "The

very simple, that people are being and disturbed by the vulgarly and cruelty of a society which seems so wealthy, that they may help them mould a new world. Where technologies appear to be on the side of repression they will be rejected in favour of new messages. The message may be misinterpreted. Dr Maddox may be right when he denounces false prophets with their implicit desires for personal vainglory (being a man of eminence within an advanced industrial society which is on his side), he assumes that there are no problems, and so falls to repeat the prophets of doom actually, apologetically. It is because of this lack of imagination that he glantly believes that society can adjust out all the problems. He does not engage with the radical political wing of the ecology movement, which argues that pollution is a consequence of the capitalist order of society rather than technology as a juggernaut; he ignores its existence, preferring to tilt at easier targets.

Hence he cannot offer what the optimist must in counter-doom: the promise of a transformation of society and technology, from oppression to liberation. Dr Maddox, prisoner of the system, doesn't realize that he, too, needs to be liberated.

Resources of the Earth" describes the landscape, and the underlying factors which produce it. It also indicates what materials are available to be used, or abused, by man in the little globe which he inhabits. The final theme is "Man on Earth", this describes the changing and physiology of *Homo sapiens*, and there is a good account of racial differences, with plenty of scientific diagrams and other illustrations. There is some overlap with the resources section in such topics as agriculture, but this is no disadvantage as the slightly different slant is illuminating. The title "The Good Earth" is perhaps a little misleading, for it is not only "The Good Earth", but also "The Bad Earth", except the man's culpability and responsibility is clearly indicated.

The maps making up the conventional atlas are well produced, accurate, and reasonably up to date, though the old name of "Ceylon" remains for what is now called Ceylon, and time has not allowed Bangladesh to replace East Pakistan. However, there are in existence many equally good, and several much more comprehensive, atlases of the world. This does raise some doubts about the function of the whole volume. There are many reasons to combine the two parts, and may not this combination reduce the usefulness of both? £13.95 is a lot of money, and, for the price, the atlas part is expensive in comparison with other atlases of produced simply as collections of maps of the world. A book of this size and weight is not easy to handle, and it may be feared that, in the form, those who would benefit most may not get down to the considerable task of seriously studying the planet, which is well worth reading with considerable concentration.

On Evolution by John Maynard Smith (125pp. Edinburgh University Press. £1.50, paperback 75p) is a collection of nine essays by the Dean of Biological Sciences in the University of Sussex. Except for one on "Game Theory and the Evolution of Fighting", all the essays have previously appeared in journals or proceedings. They include "Evolution and History", "Eugenics and Utopia", "The Status of Neo-Darwinism", "Time in the Evolutionary Process", "The Causes of Polymorphism", and "The Origin and Maintenance of Sex". In an introduction the author discusses the state of evolution theory today, and more important problems, and a likely development.

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foundings source of our experience of the world.

This has radical consequences. For it shows that man is his body; that the body is not an isolated given and is in no way equivalent to a material object. This is what Aristotle was getting at when he said that the eye of the corpse is not an eye because only that which is animated can really be an organ. The eye is for looking as well as being looked at.

But when this is forgotten the body is treated as an instrument which is somehow interposed between "us" and objects. This leads to the assumption that the senses get information about the outside world and pass it on to the brain. It presupposes that there is a frontier between what is "inside" and the outside world. It then becomes necessary to give an account of how I, being "inside", can infer the presence of and get information about objects that are "outside".

It is often assumed that information about objects has somehow got to be translated into the appropriate language of perception. But this is absurd, for to be able to translate one must already know two languages, one must have the set of data to be translated and the set of data into which the first is to be translated. But this is inconceivable in the case of perception, for the first set of data is by definition not given to the perceiver as it is outside him. And if the message is called untranslatable or irreducible, then again it is not a message since to be a message is to admit of translation or interpretation.

The confusion arises because it is forgotten that our own bodies are uniquely ours and that perception is something we personally are involved in. For whenever we perceive we can always say I see, I touch, etc, and we can only say this from where we are. The world is what I live through, not what I think or infer or interpret. This bodily synthesis goes about its business so silently that only unusual experiences reveal a fissure in the otherwise unrelieved atmosphere of the ordinary world unless, of course, phenomenological reflection is systematically practised.

Some experiences in the mentally ill and with hallucinogenic drugs confirm that the perceived world is not a purely objective datum made up of

facts which we can observe, measure and control.

Subjects under the influence of hallucinogens report how their altered relationship with the world is perceived in the modification of object impressions and how it transcends the individual senses. Spatial forms change in ways difficult to describe and at the same time the subject experiences a change in his own body. Temporally alters. Within this altered time sense the subject's own becoming appears as transformed. Often the subject is not sure which one of his senses it was that gave him certain impressions; he may no longer know if he is seeing or hearing. The scientists' notion that the senses are things that can be rigidly divided and catalogued is discredited.

To a less dramatic way, depressive patients not infrequently report the impression of floating while walking, they speak of the ground beneath them losing its firmness and they may have an uneasy feeling that they are sliding off it. But neurological tests show no evidence of impairment. Although they can walk and stand properly, they cannot free themselves of the impression of hovering, sinking and gliding. For the ground is firm only for him who has a firm stance upon it, who is well rooted in his world, who is ontologically secure and who can limit himself as over and against his world. Objectivating thought negates this experience and dismisses it as illusion.

In perceiving, we do not only group the properties of things. The situation is, rather, that objectification shapes itself in a variety of ways along with the uttermost manner of being between self and world.

I have suggested that it is impossible to reduce the experience of perceiving to a relationship between nervous-system and stimuli. But although the function of the brain, understood as physical and chemical, does not explain experiencing, nor mirror its content, yet the behaviour of man and animals depends upon the integrity of their bodily existence. So what, then, is the relationship between experiencing and the brain?

The answer is self-evident provided we do not succumb to our ingrained tendency to think in a language which takes the world as a series of facts independent of human activity in it. As we have argued, perceiving is a sympathetic experience for we experi-

ence ourselves in and with our world. This "with" is not a conjuncting of one piece of experience, "world", and another piece of experience, "self". The unitary phenomenon is always an unfolding towards the poles of self and world.

Physiologists, however, confuse perceiving with the content of perception. This is taken to have a relation with certain functions so that any particular perception corresponds to a particular condition of the nerve centres. To the single stimulus, it seems, correspond isolated conscious impressions. Optical stimuli are assumed to elicit patterns of visual impressions causing the seeing as well as the content of the seen.

Causal relations, though, are limited to particular events, and the stimulus as physical energy affecting a sensory organ is such a limited event. It arouses the organism, to his own activity. The stimulus produces a limited perception, namely that which I perceive now. It does not produce the perceiving but actualizes and, at the same time, limits it to the actual.

Perceiving transcends the here and now. The actual situation is only a limitation of possibilities. My position here and now is the hub of my spatio-temporal orientation. The actual moment is a divide between the future and the past. Future and past are personal lenses of time that are always related to the present of an experiencing being. It is always from this centre that the surroundings reveal themselves as a field for observation.

We do not experience timeless data of consciousness nor bits of information but the world in which there are objects for us. We are turned towards the world in expectation; we are open to it, and therefore behave receptively and neither passively nor actively towards it.

So what does the brain do? The brain is an organ in the original meaning of the word—that with which one works. It mediates between physical happenings and the world which appears to the experiencing being. It brings order to the flux of physical energy that surrounds the organism so that man and animal can find their bearings, observe, and act in it.

Dr Heaton as an ophthalmologist and psychoanalyst.

The world's weather

H. H. LAMB

Climate: Present, Past and Future

Volume 1: Fundamentals and Climatic Now.

613pp. Methuen. £11.

This weighty volume is the first of a two-part publication surveying the systematic causes and conditions of world climates. Few people would have had the academic stamina to tackle H. H. Lamb's enormous task and even fewer possess the breadth of knowledge to cover such a broad spectrum of meteorology. Almost the only aspect of climatology which is not dealt with at some length is that of regional climates per se, although contrary to what the title of the book suggests, there is also little specifically about future climates.

On the whole, Professor Lamb has succeeded in mastering the many scientific skills necessary to interpret the systematic aspects of the world's climates now and in the recent and more distant past. This ability to fit together, like the pieces of a four-dimensional jigsaw puzzle, such diverse items of evidence as carbon-14 dates, the testimony of ice deposited centuries ago as part of the Arctic ice-cap, the records of harvest successes and failures and the location of medieval vineyard terraces in England, is one which Professor Lamb has developed over many years of research, during which time he has established himself as one of the world's leading climatologists. In the past, his particularly distinctive studies in climatology have dealt with the description and interpretation of past climates in terms of our present understanding of atmospheric processes, particularly those of circulation. These skills are amplified in this

compendium of systematic climatology.

Volume 1 is divided into two sections. Part one, entitled "The Fundamentals of Climate", comprises ten chapters dealing respectively with: concepts and definitions; radiation and the heat balance; the general circulation of the atmosphere; seasonal changes; the stratosphere; cyclic and quasi-periodic phenomena; anomalous patterns of atmospheric circulation and their associated weather and climate; the oceans; the water cycle; and some observed causes of climatic variation. The emphasis in each chapter is upon the physical and dynamical explanations of the systematic aspects of climate such as the patterns of net radiation and atmospheric circulation, not only at present but also over recent centuries. With appendices, these ten chapters occupy about four-fifths of the book. Explanations are given in some detail and are frequently expressed in simple mathematical equations. There are only a few explanations of weather systems (from climate) phenomena, and in these especially Professor Lamb sometimes seems to be on less sure ground. The explanations of local winds and hailstorms, to take just two instances, are rather inadequate and out of date.

Part two gives a tabular and cartographic framework of present and past climates. There are seven maps showing global distributions of such interesting measures as the frequency of hot days, days with air frosts and rain days, plus a simplified map of Kppen's classification of world climates. These are followed by a varying selection of average and extreme monthly temperatures and rainfall for 239 stations throughout

the world. The volume is completed by forty-one pages of references and a seventeen-page index.

Meteorological science has made tremendous advances of understanding during the past few decades and climatology, which studies the integrations of weather in real space and time, has participated in this advance. It has grown from little more than a descriptive, classifying subject to one that uses physical and dynamical principles in the analysis of spatial and temporal patterns of atmospheric behaviour. It is now a true branch of geophysics, as is well illustrated by this textbook. Professor Lamb shows also how inappropriate is the outdated concept of climate as average weather. Variations of atmospheric conditions over days, weeks, months, years, decades, centuries and millennia make up the constant inconstancy of climate so that it is not only statistically difficult adequately to define average conditions but meteorologically unjustified, at least in the absence of some measure of variance. Professor Lamb's painstaking analysis of these variations leads, naturally to speculation about future conditions and the better we understand the past, the surer we can build the framework for scientific climatic forecasting.

In spite of the occasional slips, Professor Lamb is to be congratulated on producing such an informative book, one which is almost certainly destined to become a classic synthesis of our present understanding of physical and dynamical climatology. The volume is illustrated by 50 tables, 185 line-drawings and two monochrome plates. Volume 2, to be published at an unspecified later date, will summarize much of what is known about past climates, so it too should be a very substantial work.

A menagerie and its manners

Grzimek's Animal Life Encyclopedia

Volume 10: Mammals I.

Edited by Walter Fiedler, Wolfgang Gernth, Bernhard Grzimek, Dietrich Heilmann, Konrad Herter and Erich Thienius

Translated by Renata Geist and Erich Klinghammer

627pp. Van Nostrand Reinhold £10.38.

It is perhaps unfair to judge a large work on the basis of a single volume, before the rest have been published, but if the mammal volume (part one only) of Bernhard Grzimek's *Animal Life Encyclopedia* is representative, then the venture is rather disappointing. First published in German, and subsequently in French, Italian and Dutch, the encyclopedia is claimed by its promoters to be the most significant one devoted to animal life since Lydekker's *The Royal Natural History* published at the end of the last century. Much depends, however, on the meaning of the word encyclopedia and the audience for whom it may be significant. The *Traité de Zoologie*, for example, is of very great significance to zoologists and for them is the best encyclopedia of all.

The key to Dr Grzimek's *Encyclopedia* lies in its title: not *Animal*, but *Animal Life*. The emphasis is on what animals do, their habits, behaviour, feeding and breeding biology. (It is to say, the general biological information hooded by the field zoologist which is now of interest to a growing body of non-specialists. Anatomy, physiology and ethology take second place, sometimes in an almost apologetic manner. The class as a whole, its distinguishing features, its peculiarities and its evolution are compressed into a mere

fifteen pages. Hearing, olfaction and vision merit half a page each (without diagrams; few could visualize the intricacies of the cochlea from the rather garbled description). The reproductive organs are dismissed in a scant fifteen lines. Clearly, this is no book for the student, or for the zoologist (as opposed to the animal lover). If the publishers' claim that the work is "scientifically complete, and a standard reference for professional use" is scarcely justified. Sir Julian Huxley's recommendation of the book as "a masterly work" is puzzling. It falls far short of its claim to be "the most up-to-date compendium of our knowledge of the entire animal kingdom", not so much because it has a rival but because it provides a spectrum of knowledge that is not fulfilled.

An encyclopedia is usually a reference work, most frequently arranged alphabetically. In this case the arrangement is systematic and the book is more easily read than dipped into. The species headings are not obvious on the page, but there is a very thorough index of Latin and vernacular names and retrieval can be quite rapid. To retrieve information on a topic, however, is quite another matter. Reproduction, for example, has exactly two page-references in the index, the first refers to the fifteen-line description of mammalian reproduction in the introduction, and the second is an apparently chance mention picked up on the first page of the section on marsupials (on the basis of the key words *rodent* and *penta*, the first of which is not indexed at all and the second not mentioned for this page, nor indeed for anywhere in the book after page 50). Information is thus keyed only to species and genus. Short of reading the entire volume, comparisons are therefore limited to those chosen by

the authors. In fact, although a huge amount of information has been assembled, the volume is seriously impaired by the poor organization of the material. It fails to meet the requirements of an encyclopedia and becomes a large book.

Concise zoological statements, often without explanation of terms, is followed by rather informal narrative which breaks from time to time into the first person. Once their distinguishing features have been set out, in short descriptive bursts, the smaller mammals tend to become "little fellows" with "cuddly" habits. The level of the text is essentially popular, as for example:

Occasionally, sudden loud sounds frighten the animal to such an extent that it dies as a result. Death due to shock occurs also in other animals and is usually caused by an excess of certain hormones released into the blood by various glands. This condition is known as "stress".

The reader might want to know which glands and what hormones but he has no method of finding this out (stress is indexed only to this page). The list of supplementary readings at the end of the volume is heavily biased towards the Primates, which have three and a half pages of references to books and papers (including Richard Owen's paper on the eye-axe of 1861). Marsupials, Monotremes and Insectivores, which take up nearly half the volume, are together served by only eight references (no mention among other works of

Frith and Calaby's excellent book on kangaroos). In the general section on birds Harrison Matthews's *The Life of Mammals* is omitted. In the text itself, sources are not cited but the author's name, which may not appear in the supplementary readings.

The translation is less than competent. Among the many curiosities in the text one encounters "the Baron of Rothschild" at his "castle of Tring"; "William Cuff" promised to "profess of surgery"; "emulymph"; "Edward Typson"; "Sir Everald Horne" and a "bowdlerized" suboriginal and a "bowdlerized" suboriginal.

The physical bulk of the book is more than impressive, however, it is unnecessary. By using an expensive heavy-weight paper, the present volume is an awkward and unwieldy biotect large book who is putatively caring his beloved Lyde (half), would here be tempted to a second attack.

Dr Grzimek has served zoology and mankind well. His early work on diseases of poultry and cattle, his virtual recreation of the Frankfurt Zoo, his development of Tanzania's conservation programme, his books and his films, have earned him a deserved reputation as one of the great leaders in the battle to preserve and to appreciate more deeply our zoological heritage. Within the context of this battle, and whatever its shortcomings, his *Animal Life Encyclopedia* is still a remarkable contribution.

For all these criticisms, however, the volume is not without its merits. There is an excellent four-language lexicon of names, repeated four times (English, French, German and Russian—the Latin names combined with the German). Enlarged

species and subspecies are indicated at first mention. The plates are mostly of a high quality and those that have been drawn are very good indeed. Broad black margins contain small sketches illustrating behaviour or showing parts of whole animals. Every species gets at least a mention and a descriptive line, and the end of the volume is well set out. The complete set of thirteen volumes (for £120 for Charles Scribner's Sons) is a very attractive proposition.

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TO CELEBRATE International Book Year the Bibliothèque Nationale at Paris has put on an exhibition with the rather off-putting title "Le Livre". But this is no discreet assemblage of "treasures", hermetically sealed from real life in dusty-looking cabinets. Books are shockingly difficult things to display: if one is shown the cover, one longs to see the text; and so on—what one can see is never enough. Hay, then, to show off and explain out just a book or books but the book, the vehicle for serious reading in all its forms for thousands of years.

Faced with these difficulties, the Bibliothèque Nationale has put together all its considerable resources (borrowing a little, but very little, from outside) to produce a complete account of the forms in which books were made and distributed, from Ancient Egypt to the present day. Some of the choicest may seem a little odd or far-fetched, but by and large it is well, even tightly organized. No effort has been spared to make it visually attractive: every one of more than 700 exhibits has been chosen not only because it illustrates a point in the history of book production but because it looks well, both in itself and in its general setting. There can never have been an exhibition of books more exciting to look at. The whole thing, stretched along two thin galleries of the Bibliothèque Nationale, is like a prolonged pyrotechnic display, each new theme announcing itself with a bang and a flash of multi-coloured sparks as one walks from case to case.

It begins well, with a remarkably wide selection of the elements, mostly Oriental, from which this book as we know it grew up—Egyptian papyrus, baked clay from Mesopotamia, Hebrew scrolls, but including the ninth-century Muslim *Corpus Persicum* on papyrus paper, one of the four surviving documents written before the Spaniards arrived. Here, too, no early Chinese and Arab papers, and a seventeenth-century Chinese scroll printed from blocks, and fourteenth-century Korean books printed from

movable metal types. It is remarkable how little the library has been forced to borrow from outside to provide such a full and diverse display.

The core of the exhibition comes next, entitled (with characteristic grandiloquence) "Genèse et Métamorphoses du livre occidental". Within this framework, the physical constituents of books, from the classical to modern times, are analysed and illustrated. It begins with the manuscript book, the preparation of vellum, the copyist's work (shown from a Gallo-Roman scribe of a man writing to an elegant *grisaille* picture by Jean Le Tavernier of 1456), and his instruments, pen, ink, calipers, ruler, and even a reconstructed pair of medieval spectacles from the Musée de Cluny.

After a section on paper, there comes the invention of printing itself, with an early Donatus fragment, the indulgences, the 42-line Bible with rubricated and binder's colophon dated August 24, 1456, and the portrait of Gutenberg with an engraved punch in his hand. After block-books and a parenthetical section on the dispersal of the invention to Italy, France, the Far East and America, the "technology of printing" is well shown, partly with material borrowed from the Imprimerie Nationale, with early examples of copy and proofs and the early manual of Fernel, with models of presses, and a series of fine illustrations, from the plates engraved by Simonneau in the *Description des Arts et Métiers* set on foil by Colbert.

The section on the form of letters, in manuscript form and printer's type, is poor even within the rather narrow national limits chosen, but in the *Présentation du Livre*, which follows, shows in fascinating detail the growth of titles, headlines, catch-

The Book at the BN

words, and so on, in the Bible of Theodulf (early ninth century) and other early manuscripts, carried on in early printed books—an opportunity to show the library's one surviving copy of the 1457 Psalter, the recent loss of the other being lamented in the catalogue reference to the importance of the "difference between the ten copies that survive".

By the middle of the sixteenth century, typified by the fine Vascon folio of Ariosto, 1555, the layout of the book as we know it today was established. This part of the exhibition ends with some irrelevant but visually entrancing sections on "Calligrammes" and "Formes Insolites".

The decoration and illustration of books, manuscript and printed, is a subject that calls for the riches of the Bibliothèque Nationale, and here they are, from the little Roman tablets with the text of the *Iliad* interspersed with carved illustrations to a series of pages from the *Grandes Heures du Duc de Berry*, as well as some unfamiliar treasures like the Sacramental of St-Sauveur de Figeac, with its fine little *Rustic* titling. The conversion of medieval themes, often borrowed from earlier sources themselves, into the woodcut blocks that formed the staple illustration material for early printed books is subtly shown, and finally come the magnificent engravings of the seventeenth and eighteenth century, when France led the world, and the revival of the wood block with the new process of lithography in the nineteenth century.

There is a brief and inconclusive attempt to illustrate the impact of photography on books, which, however, includes the original patch and prospectus of Gillet's *Pontifical*, the forerunner of the relief photo-engraved printing block or cylinder still universal today.

Binding offers another well-taken opportunity, not only to show some of the library's earliest examples, its pair of Coptic covers, the ninth-century Corbie *Sacramental* of St-Eloi, and its treasures in ivory and Limoges enamel, but also a series of more ordinary books such as a twelfth-century Alcuin with its title-label still fresh and a fifteenth-century Gerson complete with clasps and chain. The subsequent history of binding is followed by way of the differences in the means of manufacture, etampes, rolls, filets, mosaic and so on, repeated when it comes to "cartonnage", an ingenious system, again visually interesting if historically inconsequential.

Switching from the physical make-up of books to "Production et Diffusion" involves some considerable overlap, compassed without strain on the resources. Among the examples of the monastic scriptorium at work, there is a fine twelfth-century Pontifical (use of Cologne), with a special order of blessing for a scriptorium. The transference of book production into lay hands is well documented: the *pecia* system, which originated in Paris, is marked by the original text of the University's regulation of the book-trade of 1275. With the press came the sale of books by catalogue and auction, a display culminating in a wonderfully vivid series, of posters large and small, by artists like Johannot and Cheret (and even Manet) designed to be affixed (in the French manner) to the inside and outside of booksellers' shops.

The organization and regulation of the press provides an opportunity to exhibit the Bibliothèque Nationale copy of Servetus's *Christianismi restitutio*, one of the three surviving copies of the original edition of 1553,

actually rescued from the flames of the scaffold and a little scorched in consequence. The change in the remuneration for authors from the patronage of the rich or noble individual to that of the mass market is signalled by Ronsard's receipt of 600 livres from the Royal Treasury for his *Franciade* and Victor Hugo's for 150,000 francs against the sale of the first 150,000 volumes of his collected works. That elusive quantity, the *litterate public*, is picked out with association copies (Rabelais's *Plutarch*, an opera by Grétry bound for Marie-Antoinette), with a series of short subject lists, the Classics (from the ninth-century codex Parisinus of Plato to Fénelon's *Télémaque*), books of devotion, education, encyclopaedia, medicine and the domestic arts, travel, and even works of the imagination. This last is an odd assortment, omitting the *Chanson de Roland*, Racine and Corneille, and including but one work by a foreigner, the *Divina Commedia* (the Folgo no first edition, which celebrates its quicentenary this year).

The exhibition ends with a triumphant polychrome rocket in a series of masterpieces of book production made for the Kings of France, from the Echternach Gospels and the Bibles of Charles the Bald, the Psalter of St-Louis, the *Petites Heures de Jean de Berry*, to the magnificent Paris bindings of the sixteenth century and after. (The modern luxury books and *livres de poche* are uneasily included here.) Here the Bibliothèque Nationale takes the opportunity to show off two of its most recently acquired treasures, the Hours of Jeanne de Navarre and a Prayer Book of Philip the Good, Duke of Burgundy. The first is a well-known masterpiece; the latter has been secluded in family possession in Provence. Their acquisition is an instance of the continuing vitality of the library.

"Le Livre" is an event not to be missed. The exhibition remains open until October, and it is worth a special visit, as a sample of the wealth of the Bibliothèque Nationale, as a comprehensive picture of every aspect of books, and above all as a vivid and fascinating spectacle.

Books received

Art and Architecture

TIMEWITTSCH, WLADIMIR. *The Chiese del Redentore*. Corpus Palladianum Volume III. 78pp plus 70 plates. Pennsylvania State University Press (AUPG). £2.50.

When the plague struck Venice in 1575, Doge Mocenigo and the Senate decided on theological advice to erect a votive church on the Giudecca where it could be clearly seen from the city and approached by ceremonial processions over a bridge of boats. "Fede, nostro" Andrea Palladio was instructed to prepare a design based on a T-Cross. The result was another of his masterpieces of proportion and the handling of space. Some of his inspiration was drawn from Bramante and early Roman baths, but the dome is Venetian-Byzantine and the two bell-turrets look almost Oriental. This third volume in the elegant "Corpus Palladianum" series—there are others to follow—describes with the aid of many pages of photographs and detailed drawings how Palladio overcame the architectural problem. Il Redentore tends to be overshadowed by nearby San Giorgio, also by Palladio. This volume calls attention to the equal architectural merits of his smaller church.

The Imperial War Museum evidently regard *Boy in the Blitz* as an interesting document and this is not surprising. There can be few unofficial accounts of the air attacks on London in the autumn of 1940 as copious as Colin Perry's diary, and his age at the time—eighteen—must make it unique. "The untrained outpourings of a proud and totally insignificant Londoner", the nature Mr Perry calls it in a foreword; but more valuable than anything he can contribute now is the negative virtue of having left the diary complete and unedited. It is the total statement of an immature personality subjected to the often atrocious by normal standards, but it is right to have it all in routine heroics, enlivened by bursts of fine writing and all. He longs to be a fighter pilot and snars into Milly-like episodes among the Messerschmitts. Equally romantically oyes in leshups as the bombs fall. Vivid bits of reporting penetrate the self-consciousness: "A wnoosh, scream, the draughtboard jumped inhees into the air"; or "Kennington was havoc, water and glass".

Biography and Memoirs

LAIRD, M. A. (Editor). *Bishop Heber in Northern India*. Selections from Heber's Journal. 324pp. Cambridge University Press. £6.60.

Two years after Bishop Heber's death in March, 1826, his widow published the famous *Journal*, compiled from notes and letters written to her during his tour. Its immediate success was well deserved; as Dr Spear, himself a leading authority on India at the time when the journal was written, has remarked: "It is quite the best description of India in the twenties." Heber's powers of observation, like his powers of expression, were remarkable; and he had the knack of penetrating the surface of things and discovering essentials. Had his warnings of dissatisfaction over remediable grievances been heeded by the authorities, the Sepoy

Mutiny of 1857 might never have occurred. His *Journal* is not his only title in fame; he was an excellent organiser and a man of wide human sympathies. Heber's place in the history of the Christian Church in India, his relations with the Evangelists and the High Churchmen, whom he described as "the two fiercest and foulest parties that ever divided a Church" are clearly set out in M. A. Laird's admirable introduction.

PERRY, COLIN. *Boy in the Blitz*. 220pp. Leo Cooper. £2.25.

The Imperial War Museum evidently regard *Boy in the Blitz* as an interesting document and this is not surprising. There can be few unofficial accounts of the air attacks on London in the autumn of 1940 as copious as Colin Perry's diary, and his age at the time—eighteen—must make it unique. "The untrained outpourings of a proud and totally insignificant Londoner", the nature Mr Perry calls it in a foreword; but more valuable than anything he can contribute now is the negative virtue of having left the diary complete and unedited. It is the total statement of an immature personality subjected to the often atrocious by normal standards, but it is right to have it all in routine heroics, enlivened by bursts of fine writing and all. He longs to be a fighter pilot and snars into Milly-like episodes among the Messerschmitts. Equally romantically oyes in leshups as the bombs fall. Vivid bits of reporting penetrate the self-consciousness: "A wnoosh, scream, the draughtboard jumped inhees into the air"; or "Kennington was havoc, water and glass".

SEN, N. B. (Editor). *Wit and Wisdom of Indira Gandhi*. The Uncrowned Queen of India. 336pp. New Delhi: New Book Society of India. Rs25.

N. B. Sen is an indefatigable collector of the sayings of the great; he has already compiled many books

devoted to the wit, wisdom, and reflections of such varied personalities as Plato, Shakespeare, Napoleon, in say nothing of Gandhi, Nehru and Tagore. It was perhaps inevitable that the present Prime Minister of India should find a place in this pantheon, although it may be open to doubt whether it is exactly collected in this book as measure up to the standard of the same of itself of her fellow members. But her triumph over Pakistan and her overpowering victory in the recent elections have raised her prestige among her countrymen to a height comparable to that which her father enjoyed in the heyday of his power, and the kind of iconoclasm to typify the mood now prevailing in India. Non-Indian readers may console themselves with the reflection that the extracts here are selected, although they illustrate Mrs Gandhi's policy and personality do not claim the "universal imperative" which the People's Republic of China accords to the *Thought of Chairman Mao*.

THEANE, GEORGE. *Samuel Pepys and his World*. 128pp. Thames and Hudson. £1.95.

This is a pleasing introduction to the life and character of Samuel Pepys, and to the London of the late seventeenth century. Geoffrey Trevelyan has written an account of the diary life which is nicely balanced between the public and the private, the house of business at the office and the house of relaxation at the theatre, at taverns and elsewhere. In the circumstances one can hardly expect many great insights, but Mr Trevelyan is a sensitive and perceptive reader who has chosen to set out the narrative, the diary being drawn from the *Pepys collection* at Magdalene College. When everything else is so workmanlike it is a pity that the dust-wrapped volume is not checked more carefully. It is absurd to say that London in the days of Pepys was "scarcely more than a big village"; nor is it true that "the city before he died, Dutch William, landed in Devon"; Pepys survived the landing of "Dutch William" more than fourteen years.

TUNN, ROBERT. *Gunslinger*. The Confessions of an Army Doctor. 194pp. W. H. Allen. £2.50.

Robert Turp moves in a world of mysterious foreigners of the sort who are apt to identify only "Madeleine" or "you" or "it" as the swashbuckling world of the arms trade and be

British Bookbindings

The exhibition "Modern British Bookbinding", on at the Victoria and Albert Museum from June 14 to July 16, consists exclusively of the work of Designer Bookbinders, a group of twenty-one binders, who have joined to promote their view that the design and the execution, in all its different processes, of the binding of a book is an integral operation. They are opposed to the school which separates design and execution; this, they believe with some justice, can have a damaging influence on the structure of binding. Altogether 104 bindings are on show, with at least one from every member of the group, and despite their common philosophy, the appearance of the books is surprisingly different. The work of Edgar Munfield, with Sydney Cockerell the senior member of the group, is perhaps the best starting-point: the moulding of the leather, with a simple calligraphic line in tooling linked with inlays to provide a characteristic abstract design, is immediately recognizable. Cockerell, on the other hand, shows a restrained mixture of rules and gilt decoration on natural vellum.

Most of the others have some sort of affinity with one or the other. Elizabeth Greenhill and Arthur Johnson, with elaborate multiple inlays, show some influence of the current styles in Paris (where designer and binder are often separate). Ivor Robinson, the present president of Designer Bookbinders, has a restrained but complex line in calligraphic tooling, while Philip Smith controls his kaleidoscopic assemblage of polychrome feathered unguis and sectional inlays with great bravura.

But one aspect of the show is consistently disappointing, namely the lettering. Owing to the cost of tools, no doubt, the quality of design and finishing of the titles of the books is poor and monotonous. Desmond Yardley's restrained and beautifully spaced all-over lettering for the Ashendene *Ecclesiastics* is spoilt by the poor stamps he has used. Only those who "make up" the lettering from decorative tools have achieved a reasonable degree of harmony between words and design. But it is clear that it is not a subject that interests modern binders (with the possible exception of Ivor Robinson), and most prefer to "lose" the lettering, either by reducing it very small or merging it in some other way in the overall design.

All in all, the exhibition (which has come to this country last, after three different shows in the United States, at New York, Chicago and Los Angeles) augurs well for the future of bookbinding in this country. The skill and invention is there, and only one thing further is needed. There is a sad controversy now between the traditionalists, who believe in building a binding from the inside out, and the modernists, who enforce the exterior design pattern upon the forwarding. It has led to the resignation of Roger Powell and Peter Waters when, as Bernard Middleton points out in his introduction, the group can ill afford to lose. If this rift can be sealed with mutual understanding, then the Designer Bookbinders can look forward both to an increase in patronage and to an increased voice in the trade as a whole.

Antiquarian Book Fair

The fourteenth Antiquarian Book Fair, organized by the Antiquarian Booksellers' Association, took place last week, June 13-15. It was the second to be held in the comfortably spacious room at the Europa Hotel, and although it lacked the added impetus of last year's International Congress of Antiquarian Booksellers, it was quite as populous and busy, if not more so. Some of the foreign guests did not come a second time; but their place was taken by others, and the contingent of British booksellers was as strong or stronger than last year.

The books were as varied as last year, ranging from a leaf from the 42-line Bible (H. M. Flechert to the latest, hardly out of print, first edition; from the first edition, first issue, of the Authorized Version (A. G. Thomas) to *Conary-Birds Naturalized in Utopia*, a satire on the Huguenot émigrés published in 1709 (Hofmann and Freeman) and *London Jests* 1685, a hitherto unrecorded work (J. F. T. Rogers). Tulken of Brussels had a fine and complete copy on vellum of the *Decretales* printed by Peter Schoeffer in 1470. Many a remarkable set of early printed books, including a beautiful if slightly imperfect copy of Ulrich Han's *Pharmac* (Rome, 1470-71), and Quarrich two of the Shakespeare folios. But besides these grand books there were plenty of more modest things, like Mervyn Peake's first book of poems, *Shapes and Sounds* (E. & J. Stevens), an elegant Victorian three-dimensional panorama of the Thames Tunnel (Francis Edwards), a fine "republican" binding of Thomas Holli (A. Rognyski), and two of Chivers's elegant and now "vintage" "vintage" bindings (C. Warrick).

There were several good association copies, such as *Livy Comedies* 1532, with the signature of Nicholas Ildil, headmaster of Eton and author of the first printed comedy (Deighton and Bell), and D. H.

Lawrence's *Amores* 1916, ungrammatically inscribed "To my brother George from the author" (Rola). Elsewhere could be found a 3ft x 2ft illustrated account of the coronation of Tsar Alexander II in 1856 (Weinreb), and a marvellous set of twelve pre-Napoleonic watercolour views of Moscow, not once accomplished and slightly naive (B. M. Israel)—this was one of the most original pieces in the sale. There was a complete set of the official account of Conk's first voyage (Calloway and Port), a beautiful illustrated and priced catalogue of Sheffield Plate (Orsky), and a fine uncut first edition of

Kent's *Endymion* 1818 in an almost contemporary cloth binding (Bickelstein).

But the list could be extended indefinitely. The Fair is clearly a fixture now, and a valuable opportunity for the smaller or rural book-buyer to make the acquaintance of a large cross-section of the trade. It does not need a crystal ball to predict its future course, nor to forecast its success. Everything seems set fair, the promised dearth of saleable old books has still not taken place, and the trade, with a sigh of relief, can now look forward to a whole sequence of fairs.

Most of the exhibits come from the University Library's holdings, but a few have been lent from private collections. A loan from the Kunstmuseum in Basel has made it possible to show several original woodblocks on which Dürer drew his illustrations for an abandoned edition of Terence's comedy *Andria* (printed for the first time last year by the Officina Bodoni, as reported in the *TLS* on February 4).

German Woodcuts

Woodcut illustrations for books printed in the Upper Rhine district during the fifteenth and sixteenth centuries are the subject of a fine exhibition which opened in Basel at the University Library on May 23 and remains on view until July 15.

For the early period the exhibits have been sensibly grouped and catalogued in chronological order, while the works of the most important later printers are shown together, splendidly effective exception has been made for missals and early Bibles which have been brought together in the showcases. Works printed after 1489 are arranged according to their literary content.

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Applications are invited for the post of Assistant Librarian, primarily for the Bank of England Library (Banking and Finance).
Candidates should be at least 24 years of age and must be Chartered Librarians with Part 1 in the Librarian's Examination. A degree in Library Studies and a minimum of three years' experience in a library or in a related field are essential. Applications, with curriculum vitae, should be forwarded to the Chief Librarian, Bank of England Library, 100, Abchurch Lane, London, EC4N 3DF, not later than the 7th July, 1972.

CITY OF BIRMINGHAM
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LECTURER II

Required in subject and physical education. Duties will include lecturing to undergraduate and postgraduate courses in Library Studies and Library Management. An interest in the history of book printing would be an advantage. Candidates should be Chartered Librarians. Additional appropriate qualifications would be an advantage.
Salary scale: £2,356-£3,083.
Further details and application forms (returnable by 10th July 1972) from The Staffing Officer, City of Birmingham Polytechnic, The Grange, 48 Aldridge Road, Birmingham B42 2TT.

LIBRARIANS

BOROUGH OF
MIDDLETON
PUBLIC LIBRARIES

Applications are invited from Chartered Librarians for the post of Assistant Librarian, Senior Grade A.P. 12, £2,195 to £2,457.
The appointment will be subject to a probationary period of one year. Salary will be subject to a probationary period of one year.
Middleton is situated in the north of Lancashire, about 10 miles from the coast. It has a population of about 10,000. The town is a pleasant one, with a good shopping area and a variety of amenities. The public libraries are well stocked and the staff are friendly and helpful.
Applications, with curriculum vitae, should be sent to the Librarian, Borough of Middleton, 1, The Square, Middleton, Lancashire, M20 1AA, not later than 10th July 1972.

J. M. RUSSOM Town Clerk, Town Hall, Middleton.

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SCHOOL LIBRARIANS

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A degree qualification could be an advantage. In each case the post will provide good opportunities for initiative in developing the school library as a resource centre to meet the needs of pupils and teaching staff. Duties will include close liaison with the County Library Service.
Further particulars and application form from Chief Education Officer (H.O.), County Hall, Kingston upon Thames, KT1 2DJ. Closing date 3rd July.

Robert Gordon's
Institute of Technology
AberdeenSCHOOL OF
LIBRARIANSHIP

Applications are invited from Chartered Librarians for the post of Lecturer in Librarianship. The School of Librarianship is part of the Institute of Technology, Aberdeen. It is a well-established school with a reputation for high standards of teaching and research. The post is for a full-time position, with a salary in the range of £2,474 (under review).
Further details and application form from the School of Librarianship, Robert Gordon's Institute of Technology, Aberdeen AB9 1FR.

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THE OPEN UNIVERSITY

Publishing Division

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Applications are invited for the post of Editorial Assistant in the Publishing Division, for copy editing, proof correction and general editorial assistance. The post is for a full-time position, with a salary in the range of £1,335-£1,935 per annum.
Further details and application form from the Publishing Division, The Open University, Walton Hall, Milton Keynes, MK8 9LT, not later than 10th July 1972.

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Leading London technical publisher is looking for a young Marketing Manager with publishing experience, capable of looking after long established channels of distribution, as well as expanding into new markets, both at home and abroad. Salary will be commensurate with the degree of experience and ability.
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Salary \$47,172—\$47,482 p.a.

Burnie is in the centre of Tasmania's thriving and picturesque North West coast region, where the emphasis is on industry, agriculture and tourism.
Duties: Organisation and management of the Regional Library service, act as Secretary to the Committee of Management of the Service, tender advice to the State Librarian on the development of library services in the region.
Qualifications: Associate membership of the Library Association of Australia (or equivalent qualifications such as A.L.A.) University degree in addition is desirable. Together with five years' post qualification experience, there must be acceptable experience in the management of public libraries and an aptitude for public relations work associated with such a library service.

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Salary \$46,323—\$46,633 p.a.

Launceston is Tasmania's second city and the library region covers much of the North and N.E. parts of the island. All the facilities of a well-established city and easy access to other parts of the State and the Mainland.
Duties: To assist and deputise for the Regional Librarian as required. Co-ordinate the selection of all books to be added to the collection of the Northern Regional Library System.
Qualifications: Associate membership of the Library Association of Australia (or equivalent qualifications such as A.L.A.) together with acceptable post qualification experience.

LIBRARIAN
HOBART

Salary \$48,323—\$48,633 p.a.

Hobart is the capital of Tasmania (population approx. 150,000) and the headquarters of the State Library of Tasmania. The State Library is a well-established library with a reputation for high standards of service and research. The post is for a full-time position, with a salary in the range of \$48,323-48,633 p.a.
Further details and application form from the State Library of Tasmania, 458 Strand, Launceston TAS 801. Applications close on 25 July, 1972.

British Museum (Natural History)

RESEARCH FELLOWSHIP

History of Natural History

Work on some aspect of the history of natural history, the history of the Museum's collections, the history of the Museum's staff, or the history of the Museum's buildings. The post is for a full-time position, with a salary in the range of £2,195-£2,457.
Further details and application form from the British Museum (Natural History), 6, Russell Square, London WC1B 3DG, not later than 10th July 1972.

CHARTERED INSURANCE
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Assistant Librarian required as deputy head in special library with control of the Institute's library. The post is for a full-time position, with a salary in the range of £2,195-£2,457.
Further details and application form from the Chartered Insurance Institute, 20 Aldersbury, London EC2V 7TH.

counts his adventures in a suitably stylish way, mixing memories of his earlier years in the Army with recollections of more recent episodes in Africa, Paris and elsewhere.

Communications

HUGGETT, FRANK E. *Travel and Communication*. 181pp. Harrap, £2.
Intended for use in schools, this account of past and present modes of travel concludes each chapter with some exercises and brief lists of books to read and places to visit. It borrows largely from first-hand descriptions by travellers and traces developments from the early steamships, coaches and railroads, to modern air travel. A final chapter on communications, also largely relying on contemporary accounts, carries the story from the invention of the telegraph to Telstar.

Drama

Ballad of the Hidden Dragon. Liu Chih-yuan chu-kung-liao. Translated with an introduction by M. Dolzela-Vellengrova and J. I. Crump. 128pp. Clarendon Press; Oxford University Press, £3.50.

The *Ballad of the Hidden Dragon* is the first translation into a Western language of one of the two complete specimens of its genre still extant. The *chu-kung-liao* was a blend of music and speech, the brief prose linking passages being recapitulated and amplified in verse interludes sung to a musical accompaniment. Reaching the height of its popularity in the Sung dynasty, the *chu-kung-liao* provides the link in development from the art of the popular story-teller to the fully-staged operatic dramas of the Yuan and Ming dynasties. The choice of musical modes following a fixed sequence of scales was an essential part of this art as it was to be in later opera, but at this time the story was told and sung by a single performer. Many of these entertainers seem to have been high-class courtiers, so themes of romance were uncommon, but the flexible length and

adaptability of the genre lent itself to tales of a more epic nature, as to this ballad, the story of the rise to power of Liu Chih-yuan, first emperor of Han. M. Dolzela-Vellengrova's translation, with self-explanatory commentary from J. I. Crump, is lively and graceful, and her introduction useful; there is a bibliography of works on the genre (almost exclusively in Chinese, or Japanese). The book will be valuable to those interested in the oral tradition in literature and in the history of the drama as well as to sinologists.

Ecology

FABUN, DON with HYLAND, KATHY and CONOVER, ROBERT. *Dynamics of Change*. 230pp. Collins/Macmillan. £3.95 (paperback, £2.70).

Don Fabun has produced an odd and almost enchanting book. It is about the present future, under six headings, Ecology, Shelter, Energy, Food, Mobility and Telecommunications, and presents a mass of miscellaneous information and predictions. The illustrations range from the weird to the gorgeous, and the quotations from others which litter the pages are sometimes apposite and sometimes hilarious. A swashbuckling, rambling book with a serious purpose somewhat obscured by the extravagance of its layout.

Heraldry

MILTON, ROGER. *The English Ceremonial Book*. A History of Robes, Insignia and Ceremonies Still in Use in England. 216pp. Newton Abbot: David and Charles, £3.50.

"The English Ceremonial Book" lays no claim to be a work of scholarship. This opening of the introduction must damn hypercriticism, as we turn to the prologue, which tells us that the office of Earl Marshal is hereditary in the family of the Fitz-Allen (sic) Dukes of Norfolk, and

to a series of drawings of fifteenth-century heralds with the French tabards and the wrong place on their shields. The impression of a somewhat haphazard approach to the subject recurs from time to time. Roger Milson has provided an informative and useful book, but the reader, for a popular audience, though the prudent reader will not cite him in matters of detail without checking.

History

DIETZ, BRIAN (Editor). *The Port and Trade of Early Elizabethan London Documents*. 196pp. London Record Society, £4.50. (Monographs, £3.50).

With indexes of merchants, ships and places, and lists of commodities, etc., in appendixes, this volume is mainly a calendar of the London Port Book for 1567-68, illustrating the capital's seaborne trade in early Elizabethan times. A systematic reform of the customs had recently been undertaken, and in his introduction Brian Dietz includes a discussion of how far this had been effective in checking smuggling and fraud, a matter of importance in assessing the value of the port books.

Local History

BETHEMAN, JOHN and GRAY, J. S. *York and Edwington in Brighton from Old Photographs*. Unnumbered pages. 154 illustrations. Binsford, £2.50.

Many of the 154 old photographs in this informally captioned album are for comparison with Brighton in 1972; others (like Stanley Baldwin's wedding party at Rottingdean, or a group of students sketching a local scene) are social history of a less local sort. The collection as a whole is necessary and irreplaceable documentation for anyone who knows Brighton, and is a fine record of local development between 1850 and 1910. One special virtue is that it is obsessed with the smart parts

of Brighton but with the whole town and all its inhabitants. John Betheman's introduction is rightly appreciative of J. S. Gray's collection of photographs, of which there are a small selection, and rightly pessimistic about Brighton's future at the hands of the "Marlon-mad". Some of the nicest things in Brighton, such as Kemptown, may have once been "developments" but that does not alter the cheap and seafaring horror of the slowly evolving Marina.

Theatre

BRYAN, MICHAEL. *Punch and Judy: Its Origin and Evolution*. 86pp. Aberdeen: Shiva. £1.50.

Since George Speaight's *History of the English Puppet Theatre* was first published in 1955 no serious examination of the English Punch and Judy show has appeared, according to the dust-jacket of Mr Byrom's study. This is nonsense, for Mr Speaight's own book on Punch and Judy appeared in 1970 and is referred to by the author. Michael Byrom has reviewed his subject independently and afresh. His prints in English the text of an eighteenth-century Neapolitan Punch-text (from Benedetto Croce) and also gives some English versions. He is concerned to link the Punch-play with the Mummery Play and takes issue with Mr Speaight on the origin of the modern Punch script, insisting that Picozzi's late eighteenth-century text is the key version and rejecting the notion that the old Italian, as recorded by Payne Collier, reflects a looser and English evolution. The origins of the Punch-play remain mysterious and Mr Byrom's views remain only views, but this small and not very well produced book, with its thirty-three illustrations, will be welcomed by anyone interested in the subject.

Wine and Food

GAUSMAN, JANE. *Good Things*. 232pp. Michael Joseph, £3.80.

Mrs. Gausman's "good things" made their first appearance in a series for

The Observer Magazine. Under such headings as "Mussels and Seal-Jobs", "Venison", "Parsnips", "Edible Woodland Mushrooms", she made suggestions for the use of neglected, unusual or sometimes quite ordinary things. Her book should delight the countrywoman or the adventurous housewife who snaps up a bargain in the market without perfectly knowing what she is going to do with it.

Mrs. Gausman spends part of the year in the Touraine country, between the Loire and the Sarre, and the preface to each chapter often evokes the colour and smell of that mysterious region. Most of her recipes have a good French accent, but she also draws on English regional cooking, or those excellent writers, Elizabeth Acton and Hannah Glasse, and there are dishes from as far apart as Boston and Peking.

With attractive drawings by M. J. Moll, the book is too handsome and expensive for kitchen-table use. Well stuffed with bits of legend and history, this is a book, best suited, perhaps for bedtime browsing.

STUMBS, JOYCE. *The Home Book of English Cookery*. 245pp. Faber and Faber, £2.25.

Part of a series of "Home Books" on national cookery, Joyce Stumbs' account of English traditional dishes is really excellent. A better book for the new young housewife or the more practised one, tired of trying out foreign dishes, could not be imagined. Clearly printed and usefully cross-referenced, it wastes few words and presents our national cooking as something we should be proud to practise. To a generation bored with the dreary variants on fruit salad and commercial ice cream that even good restaurants offer, the pudding section is particularly inviting. She makes it appear, as indeed it should be, a simple matter to whisk up largely forgotten favourites like Apple Amber and Queen of Puddings to delight the family. There are a few more unusual dishes, such as Lun of Pork baked with Quinces, that sound well worth trying.

JOYCE STUMBS is a professional cook and a writer of cookery books. She has been a member of the Guild of Food Writers for many years and is a regular contributor to *The Observer* and *The Sunday Times*.

CLASSIFIED ADVERTISEMENTS

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Applications are invited from Chartered Librarians for the post of Librarian, Senior Grade A.P. 12, £2,195 to £2,457.
Further details and application form from the County of Cornwall, 1, The Square, Newquay, not later than 10th July 1972.

OBERVESHIRE
EDUCATION COMMITTEE

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Further details and application form from the County of Wiltshire, 1, The Square, Wiltshire, not later than 10th July 1972.

CITY OF LANCASTER
SENIOR ASSISTANT LIBRARIAN

Applications are invited from Chartered Librarians for the post of Senior Assistant Librarian, Senior Grade A.P. 12, £2,195 to £2,457.
Further details and application form from the City of Lancaster, 1, The Square, Lancaster, not later than 10th July 1972.

HERTFORDSHIRE COUNTY
COUNCIL

Applications are invited from Chartered Librarians for the post of Assistant Librarian, Senior Grade A.P. 12, £2,195 to £2,457.
Further details and application form from the County of Hertfordshire, 1, The Square, Hertfordshire, not later than 10th July 1972.

LEICESTERSHIRE
COUNTY COUNCIL

Applications are invited from Chartered Librarians for the post of Assistant Librarian, Senior Grade A.P. 12, £2,195 to £2,457.
Further details and application form from the County of Leicestershire, 1, The Square, Leicestershire, not later than 10th July 1972.

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LIBRARIAN

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Further details and application form from the Inner Temple Law Library, 1, The Square, London, not later than 10th July 1972.

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LIBRARY

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Further details and application form from the National Central Library, 1, The Square, London, not later than 10th July 1972.

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